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NATIONAL HEART TRANSPLANTATION STUDY

VOLUME 2.

THE NEED FOR HEART TRANSPLANTATION
AVAILABILITY OF DONOR ORGANS

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Administration. Project Officer: Joel H. Broida, Sc.D.

THE RESEARCH TEAM
FOR THE NATIONAL HEART TRANSPLANTATION STUDY

PROJECT DIRECTOR:
ROGER W. EVANS, Ph.D.

CO-INVESTIGATORS AND RESEARCH ASSOCIATES:
(In Alphabetical Order)

Lisa Bowen	Research Assistant
Julie Elworth	Research Specialist
Roger W. Evans	Principal Investigator
Louis P. Garrison, Jr.	Co-Investigator
Millie Gregory	Project Secretary
L. Gary Hart	Research Specialist
Marilyn Hoe	Research Assistant
Cynthia Livak	Research Assistant
Albert R. Jonsen	Co-Investigator
Anthony Maier	Research Assistant
Diane L. Manninen	Co-Investigator
Donna McLynne	Clerk
Karen Merrikin	Research Assistant
Thomas D. Overcast	Co-Investigator
Judith Raab	Research Assistant
Jonathan Rodin	Research Assistant
Lair Showalter	Research Assistant
Junichi Yagi	Co-Investigator

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CHAPTER 10

THE NEED FOR HEART TRANSPLANTATION:
AN OVERVIEW

Roger W. Evans, Ph.D.
Research Scientist
Health and Population Study Center
Battelle Human Affairs Research Centers
4000 N.E. 41st Street
Seattle, Washington 98105

A. INTRODUCTION

For more than 40 years diseases of the heart and blood vessels have been the major cause of death in the United States (Levy and Moskowitz, 1982). In 1900, the leading cause of death was pneumonia (all forms) and influenza. By 1940, however, diseases of the heart became the leading cause of death, accounting for 292.5 deaths per 100,000 population. Deaths due to cancer and malignant neoplasms were the second leading cause of death, accounting for 120.3 deaths per 100,000 population. As shown in Table 10-1, heart disease continues to lead all causes of death even though death rates due to this cause have declined since 1960. Table 10-2 shows age-adjusted death rates for selected causes in 1980.

It is estimated that each day over 3,400 Americans suffer a heart attack and approximately 1,600 people suffer strokes (Levy and Moskowitz, 1982). Each year, over 25,000 children are born with heart defects, and there are over 100,000 children and 1.7 million adults who suffer from rheumatic heart disease (Levy and Moskowitz, 1982:121).

In the U.S., coronary heart disease accounts for nearly two-thirds of all cardiovascular deaths, and is actually the leading cause of all deaths. In 1978, 650,000 people died of coronary heart disease, of which, 150,000 were less than 65 years of age. Approximately one-third of the deaths from all causes in persons between the ages of 35 and 64 years are due to coronary heart disease, and nearly 40 percent of all deaths in white males aged 55 years and over are caused by this disease.

Table 10-1

First and Second Leading Causes of Death, 1900-1979
(all Ages, Crude Death Rates per 100,000)

<u>YEAR</u>	<u>LEADING CAUSE</u>		<u>SECOND CAUSE</u>	
	<u>CAUSE</u>	<u>DEATH RATE</u>	<u>CAUSE</u>	<u>DEATH RATE</u>
1900	Pneumonia	202.2	Tuberculosis	194.4
1940	Heart Disease	292.5	Malignant Neoplasms	120.3
1950	Heart Disease	348.4	Malignant Neoplasms	139.8
1960	Heart Disease	330.6	Malignant Neoplasms	149.2
1965	Heart Disease	331.7	Malignant Neoplasms	153.8
1970	Heart Disease	330.3	Malignant Neoplasms	162.8
1975	Heart Disease	296.1	Malignant Neoplasms	171.7
1978	Heart Disease	294.1	Malignant Neoplasms	181.9
1979	Heart Disease	293.8	Malignant Neoplasms	183.6

SOURCE: National Center for Health Statistics, 1982; 62-63, Tables 16-17.

Table 10-2

Age-Adjusted Death Rates For Selected Causes of Death, 1980

<u>CAUSES OF DEATH</u>	<u>DEATHS PER 100,000 POPULATION</u>
1. Diseases of the heart	205.3
2. Malignant neoplasms	134.2
3. Accidents and adverse effects	43.4
4. Cerebrovascular diseases	41.5
5. Chronic liver disease and cirrhosis	12.6
6. Pneumonia and influenza	12.6
7. Suicide	12.2
8. Homicide and legal intervention	11.4
9. Diabetes mellitus	10.1

SOURCE: National Center for Health Statistics, 1982:59.

Over the past several years there has been a decline in cardiovascular mortality--30 percent in the last 30 years--with as much as 60 percent of the total decline having occurred between 1970 and 1980 (Levy and Moskowitz, 1982; Anonymous, 1983; Havlick and Feinleib, 1979). It is estimated that this decline in overall cardiovascular mortality is associated with more than 1.2 million lives being extended between 1968 and 1978. This decline is also credited with increasing life expectancy for men and women by more than 2 years in the last decade. Most striking has been the increase in life expectancy for black males and females for whom there has been an increase of more than 3.5 years of life expectancy in the past decade.

There are numerous factors that are felt to be associated with the decline in cardiovascular deaths and coronary heart disease and stroke, in particular. Among these factors are improved medical services, the development of coronary care units, advances in surgical and medical treatment of coronary heart disease, and improved control of blood pressure (Levy and Moskowitz, 1982:123). Socioeconomic and environmental factors have also doubtlessly contributed to this decline (Walker, 1983). Among the more important changes have been in life-styles, smoking behavior, leisure time activity, and eating habits.

Among the primary indications for heart transplantation, at least two have been significantly affected by cardiovascular disease research--cardiomyopathy (as an etiological process) and coronary heart disease (as a clinical syndrome). Just a decade ago

cardiomyopathies were not easily recognized and there was a serious paucity of data on the actual incidence, prevalence, and geographic distribution of these conditions (Levy and Moskowitz, 1982:126; James, 1983). While the causes of cardiomyopathies remain elusive, their diagnosis has been improved through a variety of noninvasive diagnostic instrumentation.

Significant developments have also occurred in the diagnosis and treatment of coronary artery disease, although more research, both clinical and fundamental, is critical to developing a better understanding of the cause and course of coronary heart disease and for improving diagnosis and treatment. In 1981, about 159,000 coronary artery bypass grafts were performed in the U.S. Although there remains some question as to how many of these are necessary, the fact is the procedure has been of substantial benefit to many patients (National Institutes of Health Consensus Development Conference Statement, 1981; Roberts, 1983; Braunwald, 1983; Kolata, 1983; Hammermeister, 1983; Hall et al., 1984; CASS Principal Investigators and Their Associates, 1984).

More recently a less invasive therapeutic alternative to coronary artery bypass has become available--percutaneous transluminal coronary angioplasty (PTCA). This procedure, introduced as a clinical therapy in 1977 by Gruntzig is now available to a limited subset of patients with coronary artery disease (Gunby, 1984a; 1984b; Simmons, 1984; Gruntzig et al., 1979; Kaltenbach et al., 1982; Doubilet and Abrams, 1984). However, the long-term efficacy of this procedure still remains to be determined (Kent et al., 1982).

Other developments have occurred in the area of pharmacologic agents. A new group of drugs that block the passage of calcium ions across cell membranes has recently been developed (Levy and Moskowitz, 1982). The most significant clinical experience has been obtained with four of these agents: verapamil, nifedipine, perhexiline, and diltiazem (Opie, 1984).

While all of these developments have been important, and the death statistics presented above are alarming, heart transplantation remains an aggressive treatment approach that is suitable for a particular subset of patients with end-stage cardiac disease (ESCD). A review of the data (see Table 10-3) published in 1979 by the Stanford University Medical Center heart transplant program reveals that a large number of the patients receiving heart transplants had a preoperative diagnosis of coronary artery disease (57.4%) or cardiomyopathy (39.7%). A review of patients transplanted more recently and receiving cyclosporine as primary immunosuppressive therapy reveals that the distribution of patients according to preoperative diagnosis has changed (see Table 10-4). Now the majority of patients have a primary diagnosis of cardiomyopathy (60.3%) rather than coronary artery disease (33.3%). This may reflect the effect new alternatives have had on the treatment of coronary artery disease, in particular, coronary artery bypass grafts which have been performed at a very accelerated rate since being introduced clinically in 1967 by Favaloro (1969; Anonymous, 1983; Egdahl, 1983; Loop et al., 1983). The number of coronary bypass procedures increased from about 2,000 in 1971 to

Table 10-3
Preoperative Primary Diagnosis of Heart Transplant Recipients
At Stanford University Medical Center, 1979

<u>PRIMARY DIAGNOSIS</u>	<u>NUMBER OF PATIENTS</u>	<u>PERCENT OF PATIENTS</u>
Coronary artery disease	78	57.4
Idiopathic cardiomyopathy	54	39.7
Posttraumatic aneurysm	1	.7
Valve disease with cardiomyopathy	<u>3</u>	<u>2.2</u>
TOTALS	136	100.0

SOURCE: Baumgartner et al., 1979:11.

Table 10-4

Preoperative Diagnosis of Heart Transplant Recipients
(Single Graft Only) Receiving Cyclosporine At
Stanford University Medical Center, 1983

<u>PRIMARY DIAGNOSIS</u>	<u>NUMBER OF PATIENTS</u>	<u>PERCENT OF PATIENTS</u>
Coronary artery disease	21	33.3
Cardiomyopathy	38	60.3
Viral myocarditis	1	1.6
Coronary embolus (pregnancy)	1	1.6
Congenital heart disease	1	1.6
Valve disease with myopathy	1	1.6
TOTALS	63	100.0

SOURCE: Oyer et al., 1983:2547.

49,000 in 1975, to more than 159,000 in 1981 (see Kolata, 1983; Rushmer, 1980; Preston, 1977).

In addition to end-stage cardiac disease, potential recipients of heart transplants must have advanced functional disability (New York Heart Association Class IV) and a prognosis of survival that is limited to several weeks, but not more than six months (see Baumgartner et al., 1979). In addition, there are numerous other patient selection criteria (described below) that must be met before a patient is considered eligible for a heart transplant. While there is some variation across heart transplant programs in the selection of heart transplant recipients, the variation is quite small (see Chapter 8).

Thus, the selection of candidates for heart transplantation is not a simple and straightforward process. While patients may be rejected at one point in time, as their condition deteriorates, they may be re-evaluated and then admitted as candidates. Occasionally patients admitted as candidates for transplantation are deselected, meaning they have regained sufficient cardiac function to preclude heart transplantation, although this is a rare occurrence.

B. OBJECTIVES

One of the major objectives of the National Heart Transplantation Study has been to estimate the need for heart transplantation in the United States under various assumptions. Hence, more than one range of estimates has been produced. In particular these estimates include the number of people who fall into each of the following categories by age, sex, and race:

- . the number of persons who have end-stage cardiac disease irregardless of patient selection criteria for heart transplantation
- . the number of people who meet the selection criteria currently followed by heart transplant programs
- . the approximate number of Medicare beneficiaries who would qualify for reimbursement, under existing entitlement rules, if heart transplants were a covered service
- . the approximate number of Medicare beneficiaries who would qualify for reimbursement if entitlement criteria were liberalized (e.g., change in 24-month disability waiting period).

The foregoing estimates obviously differ in their restrictiveness. The first estimate is unrestricted, and the other three vary in the degree to which they are restrictive.

Estimates such as the above are important to policymakers since they enable government officials to anticipate the consequences of any actions they may take regarding heart transplantation. For example, a foremost consideration in making a coverage determination is: how many people will benefit and at what cost? Furthermore, what are the implications of a full entitlement program as opposed to selective entitlement? To structure a basic program for heart transplantation requires the availability of certain information on the number of potential beneficiaries. The latter is determined by the inclusion criteria. If very specific eligibility requirements are adopted, the number of people benefiting can be limited. If the inclusion criteria are very broad, the number of people benefiting may increase substantially. Thus, what follows are three specific chapters--

11, 12, and 13--that consider the need for heart transplantation under

varying assumptions. The analyses can be broadly classified as morbidity and mortality analyses. Each of the chapters reflects the limitations of the data upon which the analyses are based.

Before proceeding, however, it is important to provide an overall framework for these analyses. There have been previous attempts made to estimate the need for cardiac replacement. There are also some more or less universal concepts that can be applied to the problem of need estimation. Finally, it is useful to begin to anticipate the results of the analyses on organ procurement, since the availability of viable donor organs will severely constrain the volume of heart transplant activity in the U.S.

C. PREVIOUS ATTEMPTS TO MEASURE THE NEED FOR CARDIAC REPLACEMENT

1. CARDIAC REPLACEMENT

Several attempts have been made to measure the need for cardiac replacement (Evans, 1982). In some instances these estimates have been made for heart transplantation, in others for the totally implantable artificial heart, and in still others, for left ventricular assist devices, whether these be for short- or long-term use. These estimates, based on varying assumptions, have differed greatly from report to report. Without going into the details of how the various estimates were derived, they are reviewed below.

As early as November, 1968, an Ad Hoc Task Force on Cardiac Replacement (1969) was appointed by the Director of the National Heart Institute to address a number of broad questions relating to cardiac replacement in persons under age 65, including an estimate of the need

for cardiac replacement. The Task Force estimated that the number of potential candidates for heart replacement would range between 11,736 and 32,168 per year. In particular the Task Force concluded that, at the time of their report, the maximum number of heart replacements per year would be 100 under existing circumstances, 12,000 if immune problems were solved, 22,000 if circulatory assist devices were available, and 32,000 if xenografts and artificial hearts were available.

In 1972, the National Heart and Lung Institute appointed an Artificial Heart Assessment Panel (1973) to study some of the societal implications of such a technological advance. Enlarging the number of prospective candidates by including patients over 65 years of age, the Artificial Heart Assessment Panel (1973) estimated that the potential number of candidates for implantation of a clinically acceptable artificial heart ranged between 16,750 to 50,300 per year.

The artificial heart program was reviewed again in 1980 by the National Heart, Lung, and Blood Institute (NHLBI) Advisory Council (1980). A working group was appointed to provide the NHLBI Advisory Council and Cardiology Advisory Committee members with information regarding the current goals, accomplishments, and scope of the program. The Council Working Group reviewed the program and specifically considered the indications, patient population, and estimated costs for left ventricular assist devices. The Working Group estimated that 8,000 to 15,000 patients per year would be potential candidates for circulatory assistance. Of these, 6,000 to

11,500 would specifically benefit from long-term left ventricular assistance. However, the Working Group qualified their findings as follows:

any estimate of patient numbers is predicated on continued adherence to the strict criteria of limiting the device to moribund patients under the age of 65, who are in otherwise good health. Furthermore, the numbers presuppose that any artificial device will be something less than perfect in its long-term reliability, and will carry with it a certain amount of encumbrance and side effects.

Other estimates have shown the need for heart transplantation to be even higher, with others indicating it to be substantially lower. Schroeder (1979) has stated that "If one assumes that one of four patients younger than 50 years dying of cardiac disease might be a candidate for cardiac transplantation, 75,000 potential recipients would be identified per year." Russell and Cosimi (1979) estimate that between 10,000 and 50,000 potential heart transplant candidates may be identified each year. The 50,000 figure is based on "major progress in the field" (Moore et al., 1968).

Lubeck and Bunker (1982) have estimated that between 16,000 and 66,000 persons would qualify for the artificial heart. If all candidates for the artificial heart have "access to hospitals capable of implanting an artificial heart and if all agreed to replacement," they estimate that 33,600 people would receive this form of cardiac replacement. The "lower bound" estimate assumes that there will be "large and intractable" problems that would decrease the attraction of artificial heart implantation. Their "upper bound" estimate, on the

other hand, assumes that the device would be highly successful and that patient selection criteria would be relaxed.

Finally, Pennock and associates (1982) have provided the lowest estimate, presumably reflecting strict selection criteria, placing the number of potential recipients at 1,000-5,000. They go on to conclude that "Even if immune suppression improved (i.e., cyclosporine), there is at present no convincing evidence for wide liberalization of current recipient selection criteria."

All of the foregoing estimates of need are summarized in Table 10-5. Clearly there is considerable variation in the estimates and it is unclear which of these is most accurate. Moreover, none of the estimates in the table are based on suitable epidemiological information. To overcome this deficiency in the National Heart Transplantation Study, an alternative approach has been taken to yield more realistic estimates of need. Below, a conceptual framework is provided for estimating need.

D. DEFINITION OF NEED

Specifying the need for a medical procedure, drug, or device largely depends upon the underlying prevalence of the condition which is to be treated. For example, if one is concerned with the application of cimetidine to treat peptic ulcer disease, it is important to know the prevalence of peptic ulcer disease (Fineberg and Perlman, 1981). Similarly, if one is interested in projecting the need for kidney dialysis and kidney transplantation, it is important to understand the prevalence of kidney disease (Evans and Blagg,

Table 10-5
Previous Estimates of the Need For Cardiac Replacement

PANEL OR GROUP	DATE OF REPORT	ESTIMATED NUMBER
Ad Hoc Task Force to NIH	1969	11,736 - 32,168
Artificial Heart Assessment Panel NHI	1973	16,750 - 50,300
Stanford (John Schroeder)	1979	75,000
Russell and Cosimi	1979	10,000 - 50,000
NHLBI Advisory Council	1980	8,000 - 15,000
Lubeck and Bunker	1982	16,000 - 66,000
Stanford (Pennock et al.)	1982	1,000 - 5,000

1981). The same is true for estimating the need for heart or liver transplantation--the prevalence of both cardiovascular and hepatic diseases likely to result in end-stage organ failure should be known. The problem, however, is that data available for estimating need are almost nonexistent. Also there is considerable variation in disease severity among patients who have cardiovascular disease. The situation is further complicated by the fact that inadequate data, in a sense, dictate the definition of need. In other words, the definition of need is often manipulated to fit the data sets available for analysis.

Manton and Stallard (1982), in their discussion of a bioactuarial strategy for estimating and projecting health resources requirements for chronic conditions, point out that estimates of need are frequently based on utilization data rather than on data derived from population-based epidemiological studies (Manton and Liu, 1984). They note that any approach which projects need based on the multiplication of a measure of current morbidity against an estimate of population size at some future date is inherently flawed. They offer several reasons for this. First, current morbidity is a poor surrogate for future morbidity. The risk of chronic disease varies across birth cohorts and, thus, it is unlikely that the "prevalence of chronic disease in today's population will remain stable over the projected period." A second problem with this approach derives from the fact that cross-sectional data are used. These data, in their words, are inherently limited to the "manifested stages of chronic diseases." In short, these data fail to reflect the subclinical phase of disease which is particularly important for purposes of forecasting.

The bioactuarial approach presented by Manton and Stallard (1982) attempts to overcome these problems by taking into consideration "important population and epidemiological dynamics." Although the approach has not been fully worked out in all its detail, multiple sources of data are used to generate estimates of need (Manton and Liu, 1984). Mortality data and U.S. Census data serve as the core of the model (Manton and Woodbury, 1982; Woodbury et al., 1979, in press). These data are supplemented with data from specific epidemiological and biomedical studies (e.g., Framingham, Tecumseh, Evanston County).

Although bioactuarial modeling is but one approach that can be applied to the problem of estimating the need for organ transplantation, it does direct attention to a critical distinction between two definitions of need. These might be referred to as biological or true need and utilization-based need. Utilization-based need estimates are derived from data sets that indicate the person has sought care for an identified medical condition. An example is the National Hospital Discharge Survey conducted by the National Center for Health Statistics. On the other hand, biological need estimates are derived from population-based epidemiological studies such as the Framingham study (Dawber, 1980). In these studies, the results of physical examinations may be used to identify a condition the individual being examined for may not have known existed (e.g., hypertension) prior to the exam. In summary, while utilization-based need is always indicative of biological need, biological need may go undetected until the utilization of health services becomes necessary (e.g., kidney failure resulting from hypertension).

Ignoring the distinction between biological need and utilization-based need, further distinctions can be made among need, met need, and unmet need. The concepts of met need and unmet need become important when resource limitations make it impossible to treat all who are in need of treatment. If one entertains the possibility that selection criteria will be used to decide who gets transplanted and who does not, then the concepts of met need and unmet need become important. Need is a term that refers to those persons requiring treatment for a given condition regardless of any selection criteria. Met need is a term used to refer to that group of patients known to have disease X who are treated. Met need can be dictated by selection criteria. For example, 2000 people may have disease X and need a transplant, but only 500 are transplanted given prevailing selection criteria.

Unmet need is a term used to refer to those persons who go untreated. There are at least two definitions of unmet need. First, if biological or true need is known, unmet need is that number of people with disease X who go untreated. For example, the 1500 people with disease X, above, who need transplants but fail to receive them would be the unmet need. The second definition of unmet need derives from the use of utilization data to project need. For the moment, let it be assumed that an analysis of utilization data indicates the number of persons with disease X (above) is 1500, while the true or biological need estimates indicate that 2000 people have disease X. Due to the imprecision of the utilization-based estimates of need, it would be concluded that the unmet need, that is, the number of persons with disease X who do not get transplanted, would be 1000 (instead of

1500). Thus, depending upon which data estimates of need are based, estimates of need may be more or less precise, giving rise to two definitions of unmet need--biological unmet need and utilization-based unmet need.

In both cases unmet need refers to people who go untreated--that is those who do not receive a particular drug or treatment. Unmet need can result from: (1) a failure to accurately estimate true or biological need, (2) the use of explicit criteria in the selection of patients for treatment, and (3) the failure of people with a given disease to present themselves for treatment.

Several data sets are available to provide insight into the need for organ transplantation. Each of these data sets has various limitations which makes it imperfect for need estimation. They do, however, represent the only available data suitable for projecting the need for organ transplantation. These data sets, their purpose or use, the variables they contain, and their strengths and weaknesses are summarized in Table 10-6.

E. RECIPIENT SELECTION FOR CARDIAC TRANSPLANTATION

Strict patient selection protocols are currently followed to select heart transplant recipients. Generally, they are designed to achieve the highest possible rate of successful treatment outcomes. The protocols weigh the nature of the cardiovascular problem, the presence of other medical problems, the age of the candidate, the psychological, and possibly the financial situation of the candidate.

Table 10-6
Data Sources For Need Analyses

<u>DATA</u>	<u>PURPOSE/USE</u>	<u>RELEVANT VARIABLES</u>	<u>STRENGTHS</u>	<u>WEAKNESSES</u>
National Hospital Discharge Survey	Estimate need; Morbidity analyses	Age Sex Race Marital Status Discharge Status Diagnoses Operations	National data	Double counting; depends on utilization
NCHS Mortality Data	Estimate need; Mortality analyses	Underlying causes of death Contributory conditions	Longitudinal national data; Biological need	General problem in recording diagnoses
Inpatient Hospital and Skilled Nursing Facility Admission Data (MEDPAR)	Estimate need; Current medicare beneficiaries only	Age Sex Race Admitting diagnosis Discharge diagnoses Surgical procedures	Only data available for Medicare patients	Based on utilization; double counting
Professional Activities Data	Estimate Need	Age Sex Race Diagnosis Lab tests Discharge status	National (with limitations)	Not all hospitals participate

At the present time, no formal policy exists regarding the selection of candidates for heart transplantation. Neither the federal government nor medical professional groups have explicitly mandated a list of specific patient selection criteria. Each heart transplant program has remained free to develop its own methods and criteria for selecting transplant recipients. There is, however, remarkable similarity among the patient selection criteria of heart transplant programs in the United States and abroad (Cabrol et al., 1982a; 1982b; English et al., 1982; Dureau, 1982). The similarity probably is accounted for by an informal adoption of the Stanford criteria by other transplant centers, since many follow the lead of the Stanford University Medical Center, which leads the world in the number of transplants performed and in general experience with heart transplantation (Pennock et al., 1982; Copeland et al., 1981; Jamieson et al., 1981; Reitz and Stinson, 1982; Jamieson et al., 1984).

At Stanford, potential heart transplant candidates are assessed for treatment suitability by a group that includes a cardiologist, a social worker, and a cardiac surgeon, all of whom have significant responsibility for direct patient care (see Chapter 8 for other transplant centers). Typically, the group accepts a number of patients roughly equal to the number of transplants that can be performed in any given period (Christopherson, 1982). While they are not labelled as such, the program eligibility standards seem to be that: (1) the patient have a critical medical need for the transplant; (2) there be no alternate medical or surgical means that will allow greater survival; and (3) the procedure have a reasonable

chance of successful outcome given the current state of transplantation technology.

Specifically, in order to be considered for transplantation, a patient must have a New York Heart Association Class IV cardiac disability (essentially a bed-to-chair existence, see Table 10-7) and/or have an estimated life expectancy of less than six months (Newman, 1981; Pennock et al., 1982; Copeland and Stinson, 1979; Evans, 1982; Copeland et al., 1981; Oyer et al., 1981; Reitz and Stinson 1982; Hastillo et al., 1980; Lower et al., 1979; Jamieson et al., 1984). In addition, the patient must have no medical contraindications to treatment, such as a recent history of pulmonary embolism, and other major organ systems also must be free from disease and infection.

Jamieson and associates (1981) at Stanford report the following specific contraindications to heart transplantation: (1) irreversible pulmonary vascular resistance higher than six to eight Wood units, (2) any active infection, (3) recent and unresolved pulmonary embolus or infarction, (4) insulin dependent diabetes mellitus, (5) a systemic disease that may independently limit patient survival or be exacerbated by immunosuppression, (6) age over 55 years, and (7) psychological abnormalities that may interfere with the strict adherence to the long-term medical regimen required.

Transplantation teams have translated the general psychological requirement into several specific patient selection criteria. To assure the proper mental attitude and to facilitate the patient rehabilitation process, the patient must have a stable or rewarding

Table 10-7
The New York Heart Classification Scheme

CLASS I.	Patients with cardiac disease but without resulting limitations of physical activity. Ordinary physical activity does not cause undue fatigue, palpitation, dyspnea, or anginal pain.
CLASS II.	Patients with cardiac disease resulting in slight limitations of physical activity. They are comfortable at rest. Ordinary physical activity results in fatigue, palpitation, dyspnea, or anginal pain.
CLASS III.	Patients with cardiac disease resulting in marked limitation of physical activity. They are comfortable at rest. Less than ordinary activity causes fatigue, palpitation, dyspnea, or anginal pain.
CLASS IV.	Patients with cardiac disease resulting in inability to carry on any physical activity without discomfort. Symptoms of cardiac insufficiency or of anginal syndrome may be present even at rest. If any physical activity is undertaken, discomfort is increased.

family or vocational environment to return to after the transplant. In addition, the patient may be excluded if he or she has a history of alcoholism, job instability, or antisocial behavior (Knox, 1980). Note that these psychosocial requirements, like the physical contraindications to heart transplantation, to the extent that they are currently valid, are subject to change as is the technology of transplantation. For instance, improvements in transplantation may make continuous treatment unnecessary following a successful operation and therefore "cooperativeness" and the ability to adjust to treatment may become less significant.

In preparation for the National Heart Transplantation Study, the Health Care Financing Administration published patient selection guidelines for the study in the January 22, 1981 issue of the Federal Register. The published criteria, reproduced in Table 10-8, were developed by the National Heart, Lung and Blood Institute's advisory group on heart transplantation. These guidelines were followed by the six heart transplant programs which participated in the National Heart Transplantation Study.

Ultimately, once patients are found to be suitable for transplantation, they are subjected to a variety of blood and histocompatibility tests. Over the past decade, an array of systems for matching cardiac donors to recipients has been investigated (Oyer et al., 1981). Only three systems have been demonstrated to be useful and/or practical. These include ABO blood type compatibility, negativity of the lymphocyte crossmatch, and compatibility for the human lymphocyte antigen.

Table 10-8
Contraindications To Heart Transplantation As Specified By
the National Heart, Lung, and Blood Institute's
Special Advisory Group

- (1) Advancing age--e.g., beyond the age (normally about 50) at which the individual begins to have diminished capacity to withstand postoperative complications;
- (2) Severe pulmonary hypertension as reflected, for example, by a pulmonary artery systolic pressure over 65-70mm Hg and exceeding pulmonary artery wedge pressure by about 40 or more mm Hg, or a calculated pulmonary vascular resistance above approximately 6 Wood units (applicable to orthotopic cardiac transplantation because of the limited work capacity of a normal donor right ventricle);
- (3) Irreversible and severe hepatic or renal dysfunction (because of the likelihood of exacerbation early postoperatively and because of interference with immunosuppressive regimens);
- (4) Active systemic infection (because of the likelihood of exacerbation with initiation of immunosuppression);
- (5) Any other systemic disease considered likely to limit or preclude survival and rehabilitation after transplantation;
- (6) A history of behavior pattern or psychiatric illness likely to interfere significantly with compliance with a disciplined medical regimen (because a lifelong medical regimen is necessary, requiring multiple drugs several times a day with serious consequences in the event of their interruption or excessive consumption);
- (7) Recent and unresolved pulmonary infarction or pulmonary roentgenographic evidence of abnormalities of unclear etiology (because of the likelihood of pulmonary infection or its exacerbation with initiation of immunosuppression under such circumstances);
- (8) Insulin-requiring diabetes mellitus (because of exacerbation by chronic corticosteroid therapy);
- (9) Symptomatic or documented severe asymptomatic peripheral or cerebrovascular disease (because of observed accelerated progression in some patients after cardiac transplantation and on chronic corticosteroid treatment);

Table 10-8 (Continued)
Contraindications To Heart Transplantation As Specified By
the National Heart, Lung, and Blood Institute's
Special Advisory Group

- (10) Acute peptic ulcer disease (because of the likelihood of early postoperative exacerbation);
 - (11) The absence of adequate external psychosocial supports for either short or long-term bases (because such support is generally necessary during the inevitable waxing and waning of the clinical status of the patient and for adherence to the lifelong medical regimen).
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SOURCE: Federal Register Vol. 46, No. 14, Pgs. 7072-7074, Thursday, January 22, 1981.

F. SPECIFICATION OF PRIMARY DIAGNOSES FOR WHICH HEART TRANSPLANTATION IS INDICATED

Since most data sets available for producing need estimates are based on primary disease diagnosis, the first step in the analyses presented in subsequent chapters of this report was to identify those conditions that might render a person eligible for a heart transplant. Dr. Bernard Gersh of the Division of Cardiovascular Diseases and Internal Medicine at the Mayo Clinic, one of the physician consultants to the National Heart Transplantation Study team, compiled such a list. Dr. Gersh used the International Classification of Diseases, 9th Revision, Clinical Modification (ICD-9-CM) as well as the International Classification of Diseases Annotated, 8th Revision (ICDA-8) to identify the diseases and conditions in question (NCHS, 1962; HCFA, 1980). Since data from multiple years were to be used for the analyses, it was necessary to use both the ICD-9-CM and the ICDA-8 codes. The fact that data from some years are coded according to ICDA-8 and others according to ICD-9-CM makes it impossible to compare estimates directly which are based on the two coding systems. This has been unfortunate but there is no alternative. Nevertheless, in all instances, sufficient data are available from year-to-year to give some sense of the stability of estimates derived from them. Each of the following chapters identifies which years of data were used to produce the estimates, as well as the diagnostic system in use at the time.

The lists of diseases and conditions developed by Dr. Gersh are contained in Tables 10-9 and 10-10. Table 10-9 are diagnostic codes according to ICDA-8, and Table 10-10 are the equivalent diseases and

Table 10-9
 CARDIAC AND OTHER DISEASES AND CONDITIONS
 POTENTIALLY REQUIRING HEART TRANSPLANTATION:
 FINAL LIST BASED ON ICDA-8-REV CLASSIFICATION

<u>ICDA-8-REV CODE</u>	<u>DISEASE OR CONDITION</u>
171	<u>MALIGNANT NEOPLASM OF CONNECTIVE AND OTHER SOFT TISSUE</u>
171.1	Trunk
394	<u>DISEASES OF MITRAL VALVE</u>
394.0	Specified as rheumatic
394.9	Not specified as rheumatic
395	<u>DISEASES OF AORTIC VALVE</u>
395.0	Specified as rheumatic
395.9	Not specified as rheumatic
396	<u>DISEASES OF MITRAL AND AORTIC VALVES</u>
396.0	Specified as rheumatic
396.9	Not specified as rheumatic
398	<u>OTHER HEART DISEASE, SPECIFIED AS RHEUMATIC</u>
412	<u>CHRONIC ISCHEMIC HEART DISEASE</u>
412.0	With hypertensive disease
412.9	Without mention of hypertensive disease
422	<u>ACUTE MYOCARDITIS</u>

Table 10-9 (Continued)
CARDIAC AND OTHER DISEASES AND CONDITIONS
POTENTIALLY REQUIRING HEART TRANSPLANTATION:
FINAL LIST BASED ON ICDA-8-REV CLASSIFICATION

<u>ICDA-8-REV CODE</u>	<u>DISEASE OR CONDITION</u>
424	<u>CHRONIC DISEASE OF ENDOCARDIUM</u>
424.1	Of aortic valve, nonrheumatic
425	<u>CARDIOMYOPATHY</u>
427	<u>SYMPTOMATIC HEART DISEASE</u>
427.0	Congestive heart failure
427.1	Left ventricular failure
428	<u>OTHER MYOCARDIAL INSUFFICIENCY</u>
429	<u>ILL-DEFINED HEART DISEASE</u>
429.9	Other and unspecified heart diseases

List excludes all hypertensive and acute myocardial infarction.

This list compiled by Bernard J. Gersh, M.D., Division of Cardiovascular Disease and Internal Medicine, Mayo Clinic, Rochester, Minnesota. The list has been reviewed by Henry Bahnson, M.D. (University of Pittsburgh), Jack G. Copeland, M.D. (University of Arizona), Stuart Jamieson, M.D. (Stanford University Medical Center), and Robert Wallace, M.D. (Georgetown University).

Table 10-10
CARDIAC AND OTHER DISEASES AND CONDITIONS
POTENTIALLY REQUIRING HEART TRANSPLANTATION:
FINAL LIST BASED ON ICD-9-CM CLASSIFICATION

<u>ICD-9-CM CODE</u>	<u>DISEASE OR CONDITION</u>
164	<u>MALIGNANT NEOPLASM OF THYMUS, HEART, AND MEDIASTINUM</u>
164.1	Heart
394	<u>DISEASES OF THE MITRAL VALVE</u>
394.0	Mitral stenosis
394.1	Rheumatic mitral insufficiency
394.2	Mitral stenosis with insufficiency
394.9	Other and unspecified mitral valve diseases
395	<u>DISEASES OF THE AORTIC VALVE</u>
395.0	Rheumatic aortic stenosis
395.1	Rheumatic aortic insufficiency
395.2	Rheumatic aortic stenosis with insufficiency
395.9	Other unspecific rheumatic aortic diseases
396	<u>DISEASES OF MITRAL AND AORTIC VALVES</u>
396.0	Mitral valve stenosis and aortic valve stenosis
396.1	Mitral valve stenosis and aortic valve insufficiency
396.2	Mitral valve insufficiency and aortic valve stenosis
396.3	Mitral valve insufficiency and aortic valve insufficiency
396.8	Multiple involvement of mitral and aortic valves
396.9	Mitral and aortic valve diseases unspecified

Table 10-10 (Continued)
 CARDIAC AND OTHER DISEASES AND CONDITIONS
 POTENTIALLY REQUIRING HEART TRANSPLANTATION:
 FINAL LIST BASED ON ICD-9-CM CLASSIFICATION

<u>ICD-9-CM CODE</u>	<u>DISEASE OR CONDITION</u>
398	<u>OTHER RHEUMATIC HEART DISEASE</u>
398.0	Rheumatic myocarditis
398.9	Other and unspecified rheumatic heart disease
398.90	Rheumatic heart disease, unspecified
398.91	Rheumatic heart failure (congestive)
398.99	Other
414	<u>OTHER FORMS OF CHRONIC ISCHEMIC HEART DISEASE</u>
414.0	Coronary atherosclerosis
414.1	Aneurysm of heart
414.8	Other specified forms of chronic ischemic heart disease
424	<u>OTHER DISEASES OF ENDOCARDIUM</u>
424.1	Aortic valve disorders
425	<u>CARDIOMYOPATHY</u>
425.0	Endomyocardial fibrosis
425.4	Other primary cardiomyopathies
428	<u>HEART FAILURE</u>
428.0	Congestive heart failure
428.1	Left ventricular failure
428.9	Heart failure, unspecified

Table 10-10 (Continued)
CARDIAC AND OTHER DISEASES AND CONDITIONS
POTENTIALLY REQUIRING HEART TRANSPLANTATION:
FINAL LIST BASED ON ICD-9-CM CLASSIFICATION

<u>ICD-9-CM CODE</u>	<u>DISEASE OR CONDITION</u>
429	<u>ILL-DEFINED DESCRIPTIONS AND COMPLICATIONS OF HEART DISEASE</u>
429.0	Myocarditis, unspecified
429.1	Myocardial degeneration
429.3	Cardiomegaly

List excludes all hypertension and acute myocardial infarction.

This list compiled by Bernard J. Gersh, M.D., Division of Cardiovascular Disease and Internal Medicine, Mayo Clinic, Rochester, Minnesota. The list has been reviewed by Henry Bahnson, M.D. (University of Pittsburgh), Jack G. Copeland, M.D. (University of Arizona), Stuart Jamieson, M.D. (Stanford University Medical Center), and Robert Wallace, M.D. (Georgetown University).

conditions according to ICD-9-CM. While the use of the diagnostic code approach to the estimation of need has been very useful, it is not without its limitations, as implied above. It has not been possible, for example, to take into account all the important epidemiological, biomedical, and population changes that will occur over the next decade. While heart disease is likely to continue to decline, the magnitude of the decline in the particular conditions of interest has not been estimated. Although the approach advanced by Woodbury, Manton, and co-workers (Woodbury et al., 1979; 1981; Manton and Stallard, 1982; Manton and Liu, 1984) to deal with the problems of estimating chronic disease prevalence is very attractive, it is yet to be determined if this approach is fully applicable to the analysis of end-stage cardiac disease. There are at least three reasons why it may not be. First, many of the conditions which are suitable for heart transplantation (e.g., viral cardiomyopathy) do not have an insidious onset, as does cancer. Second, the data sets available for estimating biological need may not include a sufficiently large number of individuals with the diseases of interest to make statistically reliable estimates. This was precisely the case in Olmstead County, Minnesota when the Mayo Clinic attempted to estimate the prevalence of ESCD. Finally, it is noteworthy that many of the conditions for which heart transplantation may be indicated are severe enough that health care utilization will eventually be necessary. None of these peculiarities in heart disease, however, would rule out the bioactuarial strategy as a useful tool to project future need, they

simply suggest that the model may have to be adapted to meet the characteristics of heart diseases.

In conclusion, perhaps the most serious shortcoming in the approach applied here to need estimation is the data on which the estimates are based. The mortality data, for example, contain no information beyond age and underlying cause of death. Thus, it is impossible to exclude people on the basis of all the contraindications for heart transplantation. The morbidity analyses are limited similarly, although it was also possible to exclude people from the tabulations if they had been diagnosed as having diabetes. Consequently, the crude estimates of need presented in subsequent chapters may actually overstate the present situation, although attempts are made to refine the estimation procedures to take into account the deficiencies of the data.

G. CONCLUSION

The foregoing discussion suggests that estimating the need for heart transplantation is not a routine, simple, or straightforward task. Instead, it is a complex task requiring a clear statement of decision rules, specification of inclusion criteria, and a precise statement of the limitations of each data analytic approach and data source. It is for these reasons that the criteria for heart transplantation have been set forth as precisely as possible. At the outset it was recognized that the initial estimates should not be so general as to include all persons with heart disease or heart defects, rather they must be realistic enough to anticipate changes in

technology that are likely to modify the current rather stringent patient selection criteria. Unfortunately, the data available for analysis do not contain all of the variables that would be desirable. In the analyses which follow in subsequent chapters, primary diagnosis and age are the most readily available inclusion criteria and in some instances comorbidity data have been available.

It is noteworthy that very recently several pediatric patients have received heart transplants. At the outset of the National Heart Transplantation Study, children under the age of 10 were generally excluded from consideration for heart transplantation. Since this situation has changed, it is likely that greater attention will focus on heart transplantation in pediatric patients (English, 1983; Penkoske et al., 1984). Penkoske and coworkers (1984) estimate that "of all patients now alive with congenital heart disease perhaps only 10% or 20% would be potential candidates for heart or heart-lung transplantation at some time during their life span." Congenital defects that may require heart or heart-lung transplantation are summarized in Table 10-11. In the future, need estimates will have to take children into consideration.

Table 10-11
Congenital Heart Defects That May Require Transplantation

<u>TYPE OF CONGENITAL HEART DEFECT</u>	<u>INCIDENCE</u>
Tetralogy of Fallot	9.7
. hypoplastic pulmonary arteries	
. RV dysfunction postoperatively*	
Transposition of the great arteries*	4.9 (9.9)**
. without VSD*	
. with RV dysfunction	
. RV dysfunction postoperatively*	
. pulmonary vascular disease*	
Corrected transposition of the great arteries*	0.5
Epstein's malformation*	0.3
Tricuspid atresia*	1.2
Univentricular heart*	1.5
Hypoplastic left heart*	-- (7.4)**
Pulmonary atresia*	0.7 (3.1)**

*Heart transplantation candidates

**Infants catheterized in the first year of life.

See: Penkoske et al., 1984.

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CHAPTER 11

MORBIDITY AS AN INDICATOR OF THE
NEED FOR HEART TRANSPLANTATION

Roger W. Evans, Ph.D.
Research Scientist
Health and Population Study Center
Battelle Human Affairs Research Centers
4000 N.E. 41st Street
Seattle, Washington 98105

A. INTRODUCTION

Morbidity, although useful, is an imperfect indicator of the need for heart transplantation. It is possible, for example, to examine hospital discharge data to derive an estimate of the prevalence of various conditions for which heart transplantation may be indicated. The problems with such estimates, however, are two: (1) as utilization-based need estimates they may understate the prevalence of the conditions of interest, and (2) simply because a person has one of the conditions does not mean that the condition is severe enough to warrant cardiac replacement. In this chapter, therefore, the analyses are directed toward the widest end of the "need funnel." The question to be addressed is simple: How many people have conditions for which heart transplantation may be indicated and that are severe enough to require hospitalization? In answering this question, the focus of attention is morbidity, not mortality. The following chapter, Chapter 12, contains estimates of need based on mortality, and represents an attempt to quantify the most narrow end of the need funnel.

As suggested above, many people are hospitalized each year with conditions that might eventually be remedied through some form of cardiac replacement. In the interim period between the diagnosis of the condition and the possible, although unlikely, referral for heart transplantation, many patients are managed through conventional medical and surgical therapy. Table 11-1, based on data for 1981, provided by the National Center for Health Statistics and the American Heart Association, reveals estimates of the number of cardiovascular operations and procedures performed in the United States. If data

Table 11-1
Estimated Numbers of Cardiovascular Operations and Procedures:
United States, 1981

<u>PROCEDURE</u>	<u>NUMBER</u>
Valves	38,000
Coronary Artery Bypass Grafts	159,000
Pacemaker Insertion, Maintenance, and Removal	177,000
Peripheral Vascular Procedures	147,000
Varicose Veins	68,000
Cardiac Catheterization	414,000
Incisions into the Lymphatic System	148,000
Other Vascular and Cardiac Surgery	490,000
TOTAL	1,641,000

SOURCE: American Heart Association, 1984.

were presented from previous years, a noticeable increase would be apparent from year to year. Since most of the people who receive the procedures listed in Table 11-1 are hospitalized for at least one day, it is obvious that considerable morbidity is revealed by hospital discharge data. Based on these data alone, it is estimated that nearly 1.7 million people were hospitalized in 1981 for various cardiovascular operations and procedures.

While the foregoing data are informative, they do not adequately reflect the prevalence of cardiac diseases for which heart transplantation may be indicated. In order to derive such estimates, the National Hospital Discharge Survey data available from the National Center for Health Statistics have been analyzed here for the most recent five years. These years are 1977-1981. While data from a single year are likely to be suitable for purposes of making need estimates, data from five years are used to determine the stability of the estimates. There is one problem associated with using data from several years, however. The data presented here are based on two separate and inconsistent versions of the International Classification of Diseases--the 8th revision and the 9th revision. Consequently, estimates based on the 9th revision are not entirely consistent with those based on the 8th. The 9th revision, being more detailed than the 8th, generally produces need estimates that are lower than the 8th. While some of the discrepancy between the 8th and 9th revisions may be due to a decline in cardiovascular disease, it is unlikely that such a decline accounts for all of it.

This chapter, like the two chapters that follow, contains a large number of tables. For every heart condition and for each year, a separate age, sex, and race breakdown is provided. These tables, rather than being incorporated in the text of the chapter, have been placed in separate appendixes at the end of the chapter (see Appendixes 11A - 11E). Summary tables, however, have been incorporated in the text, according to several predetermined "need categories." The summary tables have been compiled on a year-by-year basis. Two types of summary tables have been incorporated into the text: (1) hospital discharge data according to specific diagnoses and need categories, and (2) total number of hospital discharges on the basis of age, sex, and race, ignoring specific disease diagnoses. The intent in providing such detailed tables has been to enable the user of the report to recalculate need estimates based on varying assumptions if so desired. To minimize the extent to which this is necessary, however, the data have been presented according to several need categories.

In the remainder of this chapter, the data and methods of analysis are described and the results presented. While hospital discharge data cannot be considered to be the best estimate of the need for heart transplantation, they do provide acceptable estimates of the prevalence of those conditions to which subsequent analyses are directed.

B. DATA AND METHODS

1. DATA

A description of the data used in these analyses can be found in several publications from the National Center for Health Statistics (see Haupt, 1983:10). While the data actually vary somewhat from year-to-year, the description of the 1982 data is provided here. If desired, appropriate data descriptions for each year can be obtained directly from the NCHS.

The National Hospital Discharge Survey (NHDS) encompasses patients discharged from short-stay hospitals, exclusive of military and Veterans Administration hospitals located in the 50 States and the District of Columbia. Only hospitals with six or more beds and an average length of stay of less than 30 days for all patients are included in the survey. Discharges of newborn infants are excluded from consideration here.

The universe of the 1982 survey consisted of 6,965 short-stay hospitals contained in the 1963 Master Facility Inventory of Hospitals and Institutions. New hospitals were sampled for inclusion in the survey in 1972, 1975, 1977, 1979, and 1981. In all, 550 hospitals were sampled in 1982. Of these hospitals, 71 refused to participate, and 53 were out of scope. The 426 participating hospitals provided approximately 214,000 abstracts of medical records.

a. Sample Design. All hospitals with 1,000 or more beds in the universe of short-stay hospitals were selected with certainty in the sample. All hospitals with fewer than 1,000 beds were stratified, the primary strata being 24 size-by-region classes. Within each of

these 24 primary strata, the allocation of the hospitals was made through a controlled selection technique so that hospitals in the sample would be properly distributed with regard to type of ownership and geographic division. Sample hospitals were drawn with probabilities ranging from certainty for the largest hospitals to 1 in 40 for the smallest hospitals.

Sample discharges were selected within the hospitals using the daily listing sheet of discharges as the sampling frame. These discharges were selected by a random technique, usually on the basis of the terminal digit or digits of the patient's medical record number, a number assigned when the patient was admitted to the hospital. The within-hospital sampling ratio for selected sample discharges varied inversely with the probability of selection of the hospital.

b. Data Collection and Estimation. The sample selection and the transcription of information from the hospital records for abstract forms were performed by the hospital staff or by representatives of the National Center for Health Statistics or both. The data were abstracted from the face sheets of the medical records. All discharge diagnoses and procedures were listed on the abstract in the order of the principal one, or the first-listed one if the principal one was not identified, followed by the order in which all other diagnoses or procedures were entered on the face sheet of the medical record.

Statistics produced by the National Hospital Discharge Survey are derived by a complex estimation procedure. The basic unit of estimation is the sample inpatient discharge abstract. The estimation

procedure used to produce essentially unbiased national estimates in the National Hospital Discharge Survey has three principal components: inflation by reciprocals of the probabilities of sample selection, adjustment for nonresponse, and ratio adjustment to fixed totals (see Haupt, 1983; Sirken, 1967; Witkin, 1967).

c. Coding of the Data. In 1979-1982, coding of medical data for patients hospitalized was done according to the International Classification of Diseases, 9th Revision, Clinical Modification (ICD-9-CM) (see HCFA, 1980). For the years 1977 and 1978 the data were coded according to the International Classification of Diseases, 8th Revision (ICDA-8-REV) (see NCHS, 1962). Up to seven diagnoses and four procedures were coded for each discharge.

The following terms are relevant to an understanding of the coding of the data and the presentation of results based on the NHDS:

Discharge Diagnoses - one or more diseases or injuries (or some factor that influences health status and contact with health services which is not itself a current illness or injury) listed by the attending physician in the medical record of a patient. In the NHDS all discharge (or final) diagnoses listed on the face sheet (summary sheet) of the medical record for patients discharged from the inpatient services of short-stay hospitals are transcribed in the order listed. Each sample discharge is assigned a maximum of seven, five-digit codes. The number of principal or first-listed diagnoses is equivalent to the number of discharges.

Principal Diagnosis - is the condition established after study to be chiefly responsible for occasioning the admission of the patient to the hospital for care.

First-listed Diagnosis - is the coded diagnosis identified as the principal diagnosis or listed first on the face sheet of the medical record if the principal diagnosis cannot be identified. The number of first listed diagnoses is equivalent to the number of discharges.

2. METHODS

As noted in Chapter 10, there are many contraindications to heart transplantation. These contraindications are reproduced in Table 11-2. Unfortunately, in the examination of the hospital discharge data it has been impossible to take all these contraindications into account. It would be ideal, for example, to exclude persons from this analysis who had any of the contraindications listed in Table 11-2. Such data are simply unavailable. Nonetheless, in these analyses one contraindication, other than age, has been considered--diabetes. In all the tables presented in this chapter, persons with diabetes listed on their hospital abstraction form have been eliminated from consideration. Detailed age breakdowns have been provided to examine the implications of age as a contraindication. Only one indication for heart transplantation is considered--discharge diagnosis. If a person had listed on their medical record any of the diagnoses for which heart transplantation may be indicated (see Tables 11-3 and 11-4) they were included in the analyses. In other words, the discharge diagnosis need not be principal to include persons in this analysis.

For these analyses, based on age, several need categories have been defined taking into account discharge diagnosis. Although

Table 11-2
Contraindications To Heart Transplantation As Specified By
the National Heart, Lung, and Blood Institute's
Special Advisory Group

- (1) Advancing age--e.g., beyond the age (normally about 50) at which the individual begins to have diminished capacity to withstand postoperative complications;
- (2) Severe pulmonary hypertension as reflected, for example, by a pulmonary artery systolic pressure over 65-70mm Hg and exceeding pulmonary artery wedge pressure by about 40 or more mm Hg, or a calculated pulmonary vascular resistance above approximately 6 Wood units (applicable to orthotopic cardiac transplantation because of the limited work capacity of a normal donor right ventricle);
- (3) Irreversible and severe hepatic or renal dysfunction (because of the likelihood of exacerbation early postoperatively and because of interference with immunosuppressive regimens);
- (4) Active systemic infection (because of the likelihood of exacerbation with initiation of immunosuppression);
- (5) Any other systemic disease considered likely to limit or preclude survival and rehabilitation after transplantation;
- (6) A history of behavior pattern or psychiatric illness likely to interfere significantly with compliance with a disciplined medical regimen (because a lifelong medical regimen is necessary, requiring multiple drugs several times a day with serious consequences in the event of their interruption or excessive consumption);
- (7) Recent and unresolved pulmonary infarction or pulmonary roentgenographic evidence of abnormalities of unclear etiology (because of the likelihood of pulmonary infection or its exacerbation with initiation of immunosuppression under such circumstances);
- (8) Insulin-requiring diabetes mellitus (because of exacerbation by chronic corticosteroid therapy);
- (9) Symptomatic or documented severe asymptomatic peripheral or cerebrovascular disease (because of observed accelerated progression in some patients after cardiac transplantation and on chronic corticosteroid treatment);

Table 11-2 (Continued)
Contraindications To Heart Transplantation As Specified By
the National Heart, Lung, and Blood Institute's
Special Advisory Group

-
-
- (10) Acute peptic ulcer disease (because of the likelihood of early postoperative exacerbation);
 - (11) The absence of adequate external psychosocial supports for either short or long-term bases (because such support is generally necessary during the inevitable waxing and waning of the clinical status of the patient and for adherence to the lifelong medical regimen).

SOURCE: Federal Register Vol. 46, No. 14, Pgs. 7072-7074, Thursday, January 22, 1981.

Table 11-3
 Cardiac And Other Diseases And Conditions
 Potentially Requiring Heart Transplantation:
 Final List Based on ICDA-8-Rev Classification

<u>ICDA-8-REV CODE</u>	<u>DISEASE OR CONDITION</u>
171	<u>MALIGNANT NEOPLASM OF CONNECTIVE AND OTHER SOFT TISSUE</u>
171.1	Trunk
394	<u>DISEASES OF MITRAL VALVE</u>
394.0	Specified as rheumatic
394.9	Not specified as rheumatic
395	<u>DISEASES OF AORTIC VALVE</u>
395.0	Specified as rheumatic
395.9	Not specified as rheumatic
396	<u>DISEASES OF MITRAL AND AORTIC VALVES</u>
396.0	Specified as rheumatic
396.9	Not specified as rheumatic
398	<u>OTHER HEART DISEASE, SPECIFIED AS RHEUMATIC</u>
412	<u>CHRONIC ISCHEMIC HEART DISEASE</u>
412.0	With hypertensive disease
412.9	Without mention of hypertensive disease
422	<u>ACUTE MYOCARDITIS</u>

Table 11-3 (Continued)
 Cardiac And Other Diseases And Conditions
 Potentially Requiring Heart Transplantation:
 Final List Based on ICDA-8-Rev Classification

<u>ICDA-8-REV CODE</u>	<u>DISEASE OR CONDITION</u>
424	<u>CHRONIC DISEASE OF ENDOCARDIUM</u>
424.1	Of aortic valve, nonrheumatic
425	<u>CARDIOMYOPATHY</u>
427	<u>SYMPTOMATIC HEART DISEASE</u>
427.0	Congestive heart failure
427.1	Left ventricular failure
428	<u>OTHER MYOCARDIAL INSUFFICIENCY</u>
429	<u>ILL-DEFINED HEART DISEASE</u>
429.9	Other and unspecified heart diseases

List excludes all hypertensive and acute myocardial infarction.

This list compiled by Bernard J. Gersh, M.D., Division of Cardiovascular Disease and Internal Medicine, Mayo Clinic, Rochester, Minnesota. The list has been reviewed by Henry Bahnson, M.D. (University of Pittsburgh), Jack G. Copeland, M.D. (University of Arizona), Stuart Jamieson, M.D. (Stanford University Medical Center), and Robert Wallace, M.D. (Georgetown University).

REFERENCE: See Health Care Financing Administration, 1980.

Table 11-4
 Cardiac And Other Diseases And Conditions
 Potentially Requiring Heart Transplantation:
 Final List Based on ICD-9-CM Classification

<u>CD-9-CM CODE</u>	<u>DISEASE OR CONDITION</u>
164	<u>MALIGNANT NEOPLASM OF THYMUS, HEART, AND MEDIASTINUM</u>
164.1	Heart
394	<u>DISEASES OF THE MITRAL VALVE</u>
394.0	Mitral stenosis
394.1	Rheumatic mitral insufficiency
394.2	Mitral stenosis with insufficiency
394.9	Other and unspecified mitral valve diseases
395	<u>DISEASES OF THE AORTIC VALVE</u>
395.0	Rheumatic aortic stenosis
395.1	Rheumatic aortic insufficiency
395.2	Rheumatic aortic stenosis with insufficiency
395.9	Other unspecific rheumatic aortic diseases
396	<u>DISEASES OF MITRAL AND AORTIC VALVES</u>
396.0	Mitral valve stenosis and aortic valve stenosis
396.1	Mitral valve stenosis and aortic valve insufficiency
396.2	Mitral valve insufficiency and aortic valve stenosis
396.3	Mitral valve insufficiency and aortic valve insufficiency
396.8	Multiple involvement of mitral and aortic valves
396.9	Mitral and aortic valve diseases unspecified

Table 11-4 (Continued)
 Cardiac And Other Diseases And Conditions
 Potentially Requiring Heart Transplantation:
 Final List Based on ICD-9-CM Classification

<u>CD-9-CM CODE</u>	<u>DISEASE OR CONDITION</u>
398	<u>OTHER RHEUMATIC HEART DISEASE</u>
398.0	Rheumatic myocarditis
398.9	Other and unspecified rheumatic heart disease
398.90	Rheumatic heart disease, unspecified
398.91	Rheumatic heart failure (congestive)
398.99	Other
414	<u>OTHER FORMS OF CHRONIC ISCHEMIC HEART DISEASE</u>
414.0	Coronary atherosclerosis
414.1	Aneurysm of heart
414.8	Other specified forms of chronic ischemic heart disease
424	<u>OTHER DISEASES OF ENDOCARDIUM</u>
424.1	Aortic valve disorders
425	<u>CARDIOMYOPATHY</u>
425.0	Endomyocardial fibrosis
425.4	Other primary cardiomyopathies
428	<u>HEART FAILURE</u>
428.0	Congestive heart failure
428.1	Left ventricular failure
428.9	Heart failure, unspecified

Table 11-4 (Continued)
Cardiac And Other Diseases And Conditions
Potentially Requiring Heart Transplantation:
Final List Based on ICD-9-CM Classification

<u>CD-9-CM CODE</u>	<u>DISEASE OR CONDITION</u>
429	<u>ILL-DEFINED DESCRIPTIONS AND COMPLICATIONS OF HEART DISEASE</u>
429.0	Myocarditis, unspecified
429.1	Myocardial degeneration
429.3	Cardiomegaly

List excludes all hypertension and acute myocardial infarction.

This list compiled by Bernard J. Gersh, M.D., Division of Cardiovascular Disease and Internal Medicine, Mayo Clinic, Rochester, Minnesota. The list has been reviewed by Henry Bahnson, M.D. (University of Pittsburgh), Jack G. Copeland, M.D. (University of Arizona), Stuart Jamieson, M.D. (Stanford University Medical Center), and Robert Wallace, M.D. (Georgetown University).

age in excess of 50 years might be considered a relative contra-indication, and age over 54 an absolute contraindication to heart transplantation, defining several need categories allows a margin of flexibility in estimating the prevalence of the conditions to which this analysis is directed. Also, there is some uncertainty at this time as to precisely what should be the age limits for cardiac transplantation. Cyclosporine as primary immunosuppressive therapy could very well alter the age parameters in the future (i.e., older people may be transplanted). Thus, for purposes of compiling diagnosis-specific estimates of the total number of hospital discharges in the U.S., five need categories have been used. They are:

- . all ages
- . ages 5-54
- . ages 10-54
- . ages 5-49
- . ages 10-49

Once again, more detailed, diagnosis-specific estimates for 1977-1981 are provided in Appendixes 11A - 11E.

C. RESULTS

Tables 11-5 through 11-9 contain a condition-by-condition breakdown according to the various need categories of the number of people discharged each year with conditions for which heart transplantation may eventually be indicated. The tables are presented beginning with 1981 and going back to 1977 (1981 was the most recent year for which

Table 11-5
MORBIDITY ANALYSIS
CONDITIONS FOR WHICH HEART TRANSPLANTATION MAY BE INDICATED
ALL HOSPITAL DISCHARGES, UNITED STATES, 1981

ICD-9.CM.	DIAGNOSIS	NEED CATEGORY				
		ALL AGES	AGES 5-54	AGES 10-54	AGES 5-49	AGES 10-49
164	<u>Malignant neoplasm of thymus, heart, and mediastinum</u>					
164.1	Cardiac tumor	0	0	0	0	0
394	<u>Diseases of mitral valve</u>					
394.0	Mitral stenosis	15457	6202	6202	3719	3719
394.1	Rheumatic mitral insufficiency	4183	2061	1918	1731	1588
394.2	Mitral stenosis with insufficiency	1973	751	751	635	635
394.9	Other unspecified mitral valve diseases	10552	4499	4499	2656	2656
395	<u>Diseases of Aortic Valve</u>					
395.0	Rheumatic aortic stenosis	612	235	235	0	0
395.1	Rheumatic aortic insufficiency	270	35	35	35	35
395.2	Rheumatic aortic stenosis with insufficiency	0	0	0	0	0
395.9	Other unspecified rheumatic aortic diseases	657	550	550	550	550

Table 11-5 (Continued)
 MORBIDITY ANALYSIS
 CONDITIONS FOR WHICH HEART TRANSPLANTATION MAY BE INDICATED
 ALL HOSPITAL DISCHARGES, UNITED STATES, 1981

ICD-9.CM.	DIAGNOSIS	NEED CATEGORY				
		ALL AGES	AGES 5-54	AGES 10-54	AGES 5-49	AGES 10-49
396	<u>Diseases of mitral and aortic valves</u>					
396.0	Mitral valve stenosis and aortic valve stenosis	1274	236	236	102	102
396.1	Mitral valve stenosis and aortic valve insufficiency	1803	922	922	922	922
396.2	Mitral valve insufficiency and aortic valve stenosis	2619	451	451	451	451
396.3	Mitral valve insufficiency and aortic valve insufficiency	2085	992	992	764	764
396.8	Multiple involvement of mitral and aortic valves	1063	803	803	392	392
396.9	Mitral and aortic valve diseases, unspecified	1475	172	172	0	0
398	<u>Other rheumatic heart disease</u>					
398.0	Rheumatic myocarditis	845	672	672	672	672
398.9a	Other and unspecified rheumatic heart diseases	53356	23019	23019	16651	16651

Table 11-5. (Continued)
MORBIDITY ANALYSIS
CONDITIONS FOR WHICH HEART TRANSPLANTATION MAY BE INDICATED
ALL HOSPITAL DISCHARGES, UNITED STATES, 1981

ICD-9-CM.	DIAGNOSIS	NEED CATEGORY				
		ALL AGES	AGES 5-54	AGES 10-54	AGES 5-49	AGES 10-49
414	<u>Other forms of chronic ischemic heart disease</u>					
414.0	Coronary atherosclerosis	1284284	123568	122724	29446	58602
414.1	Aneurysm of heart	13722	3736	3736	2323	2323
414.8	Other specified forms of chronic ischemic heart disease	42256	7337	7337	4744	4744
424	<u>Other Diseases of Endocardium</u>					
424.1	Aortic valve disorders	66740	4221	4221	1507	1507
425	<u>Cardiomyopathy</u>					
425.0	Endomyocardial fibrosis	0	0	0	0	0
425.4	Other primary cardiomyopathy	49853	17147	17147	12869	12869
428	<u>Heart failure</u>					
428.0	Congestive heart failure	746650	50066	49174	27598	26706
428.1	Left heart failure	11455	1306	1306	968	968
428.9	Heart failure, unspecified	39514	1820	1553	1121	854

Table 11-5 (Continued)
 MORBIDITY ANALYSIS
 CONDITIONS FOR WHICH HEART TRANSPLANTATION MAY BE INDICATED
 ALL HOSPITAL DISCHARGES, UNITED STATES, 1981

ICD-9-CM.	DIAGNOSIS	NEED CATEGORY			
		ALL AGES	AGES 5-54	AGES 10-54	AGES 5-49 AGES 10-49
429	Ill-defined descriptions and complications of heart disease	10735	2923	2923	1159
429.0	Myocarditis, unspecified				
429.1	Myocardial degeneration	4597	664	664	261
429.3	Cardiomegaly	71668	15383	15244	10865
	TOTALS	2,439,698	269,771	267,486	152,141
					149,856

^aIncludes the following diagnoses: 398.9, 398.90, 398.91, and 398.99.

Table 11-6
MORBIDITY ANALYSIS
CONDITIONS FOR WHICH HEART TRANSPLANTATION MAY BE INDICATED
ALL HOSPITAL DISCHARGES, UNITED STATES, 1980

ICD-9-CM	DIAGNOSIS	NEED CATEGORY				
		ALL AGES	AGES 5-54	AGES 10-54	AGES 5-49	AGES 10-49
164	<u>Malignant neoplasm of thymus, heart, and mediastinum</u>					
164.1	Cardiac tumor	939	313	313	0	0
394	<u>Diseases of mitral valve</u>					
394.0	Mitral stenosis	14432	8023	8023	5597	5597
394.1	Rheumatic mitral insufficiency	1120	483	483	345	345
394.2	Mitral stenosis with insufficiency	2164	1098	1098	307	307
394.9	Other unspecified mitral valve diseases	19074	7046	7046	6164	6164
395	<u>Diseases of Aortic Valve</u>					
395.0	Rheumatic aortic stenosis	0	0	0	0	0
395.1	Rheumatic aortic insufficiency	848	594	594	594	594
395.2	Rheumatic aortic stenosis with insufficiency	167	0	0	0	0
395.9	Other unspecified rheumatic aortic diseases	555	436	436	436	436

Table 11-6 (Continued)
 MORBIDITY ANALYSIS
 CONDITIONS FOR WHICH HEART TRANSPLANTATION MAY BE INDICATED
 ALL HOSPITAL DISCHARGES, UNITED STATES, 1980

ICD-9-CM	DIAGNOSIS	NEED CATEGORY				
		ALL AGES	AGES 5-54	AGES 10-54	AGES 5-49	AGES 10-49
396	<u>Diseases of mitral and aortic valves</u>					
396.0	Mitral valve stenosis and aortic valve stenosis	1227	134	134	0	0
396.1	Mitral valve stenosis and aortic valve insufficiency	2850	2047	2047	1924	1924
396.2	Mitral valve insufficiency and aortic valve stenosis	3570	508	508	198	198
396.3	Mitral valve insufficiency and aortic valve insufficiency	2840	542	542	259	259
396.8	Multiple involvement of mitral and aortic valves	715	368	368	368	368
396.9	Mitral and aortic valve diseases, unspecified	1407	524	524	420	420
398	<u>Other rheumatic heart disease</u>					
398.0	Rheumatic myocarditis	0	0	0	0	0
398.9 ^a	Other and unspecified rheumatic heart diseases	50693	24967	24967	21362	21362

Table 11-6 (Continued)
MORBIDITY ANALYSIS
CONDITIONS FOR WHICH HEART TRANSPLANTATION MAY BE INDICATED
ALL HOSPITAL DISCHARGES, UNITED STATES, 1980

ICD-9-CM.	DIAGNOSIS	NEED CATEGORY				
		ALL AGES	AGES 5-54	AGES 10-54	AGES 5-49	AGES 10-49
414	Other forms of chronic <u>ischemic heart disease</u>					
414.0	Coronary atherosclerosis	117765	128613	128613	63323	63323
414.1	Aneurysm of heart	11549	4303	4303	2516	2516
414.8	Other specified forms of chronic ischemic heart disease	45497	9438	9438	5366	5366
424	Other Diseases of <u>Endocardium</u>					
424.1	Aortic valve disorders	29835	3815	3815	2265	2265
425	<u>Cardiomyopathy</u>					
425.0	Endomyocardial fibrosis	0	0	0	0	0
425.4	Other primary cardiomyopathy	40300	16091	16091	10472	10472
428	<u>Heart failure</u>					
428.0	Congestive heart failure	658266	47237	46014	28858	27635
428.1	Left heart failure	17433	1668	1668	876	876
428.9	Heart failure, unspecified	38312	4688	4688	1052	1052

Table 11-6 (Continued)
 MORBIDITY ANALYSIS
 CONDITIONS FOR WHICH HEART TRANSPLANTATION MAY BE INDICATED
 ALL HOSPITAL DISCHARGES, UNITED STATES, 1980

ICD-9-CM.	DIAGNOSIS	NEED CATEGORY			
		ALL AGES	AGES 5-54	AGES 10-54	AGES 5-49
429	Ill-defined descriptions and complications of heart disease				
429.0	Myocarditis, unspecified	10124	2727	2593	2029
429.1	Myocardial degeneration	3579	462	462	0
429.3	Cardiomegaly	74018	16670	16670	13663
	TOTALS	2,209,414	282,795	281,438	168,394
					167,037

^aIncludes the following diagnoses: 398.9, 398.90, 398.91, and 398.99.

Table 11-7
MORBIDITY ANALYSIS
CONDITIONS FOR WHICH HEART TRANSPLANTATION MAY BE INDICATED
ALL HOSPITAL DISCHARGES, UNITED STATES, 1979

ICD-9.CM	DIAGNOSIS	ALL AGES	NEED CATEGORY			
			AGES 5-54	AGES 10-54	AGES 5-49	AGES 10-49
164	<u>Malignant neoplasm of thymus, heart, and mediastinum</u>					
164.1	Cardiac tumor	190	0	0	0	0
394	<u>Diseases of mitral valve</u>					
394.0	Mitral stenosis	11917	4341	4067	3008	2734
394.1	Rheumatic mitral insufficiency	1981	1884	1884	1725	1725
394.2	Mitral stenosis with insufficiency	2350	441	441	169	169
394.9	Other unspecified mitral valve diseases	29747	16475	16475	13447	13447
395	<u>Diseases of Aortic Valve</u>					
395.0	Rheumatic aortic stenosis	760	0	0	0	0
395.1	Rheumatic aortic insufficiency	617	354	354	354	354
395.2	Rheumatic aortic stenosis with insufficiency	0	0	0	0	0
395.9	Other unspecified rheumatic aortic diseases	175	175	175	175	175

Table 11-7 (Continued)
MORBIDITY ANALYSIS
CONDITIONS FOR WHICH HEART TRANSPLANTATION MAY BE INDICATED
ALL HOSPITAL DISCHARGES, UNITED STATES, 1979

ICD-9.CM.	DIAGNOSIS	NEED CATEGORY				
		ALL AGES	AGES 5-54	AGES 10-54	AGES 5-49	AGES 10-49
396	<u>Diseases of mitral and aortic valves</u>					
396.0	Mitral valve stenosis and aortic valve stenosis	1246	418	418	418	418
396.1	Mitral valve stenosis and aortic valve insufficiency	987	718	718	478	478
396.2	Mitral valve insufficiency and aortic valve stenosis	3218	164	164	164	164
396.3	Mitral valve insufficiency and aortic valve insufficiency	1949	543	543	413	413
396.8	Multiple involvement of mitral and aortic valves	890	166	166	166	166
396.9	Mitral and aortic valve diseases, unspecified	1208	254	254	107	107
398	<u>Other rheumatic heart disease</u>					
398.0	Rheumatic myocarditis	330	330	330	167	167
398.9a	Other and unspecified rheumatic heart diseases	55199	26392	26392	21781	21781

Table 11-7 (Continued)
MORBIDITY ANALYSIS
CONDITIONS FOR WHICH HEART TRANSPLANTATION MAY BE INDICATED
ALL HOSPITAL DISCHARGES, UNITED STATES, 1979

ICD-9.CM.	DIAGNOSIS	NEED CATEGORY				
		ALL AGES	AGES 5-54	AGES 10-54	AGES 5-49	AGES 10-49
414	<u>Other forms of chronic ischemic heart disease</u>					
414.0	Coronary atherosclerosis	1162040	131714	131292	69958	69536
414.1	Aneurysm of heart	11094	3663	3663	2040	2040
414.8	Other specified forms of chronic ischemic heart disease	42490	9070	9070	6969	6969
424	<u>Other Diseases of Endocardium</u>					
424.1	Aortic valve disorders	58213	6127	6127	2997	2997
425	<u>Cardiomyopathy</u>					
425.0	Endomyocardial fibrosis	0	0	0	0	0
425.4	Other primary cardiomyopathy	35416	14298	14060	10730	10492
428	<u>Heart failure</u>					
428.0	Congestive heart failure	581279	49830	49326	28028	27524
428.1	Left heart failure	10641	1377	1377	728	728
428.9	Heart failure, unspecified	33399	4017	4017	1294	1294

Table 11-7 (Continued)
 MORBIDITY ANALYSIS
 CONDITIONS FOR WHICH HEART TRANSPLANTATION MAY BE INDICATED
 ALL HOSPITAL DISCHARGES, UNITED STATES, 1979

ICD-9-CM.	DIAGNOSIS	NEED CATEGORY			
		ALL AGES	AGES 5-54	AGES 10-54	AGES 5-49 AGES 10-49
429	Ill-defined descriptions and complications of heart disease	7863	2333	2333	1171
429.0	Myocarditis, unspecified				
429.1	Myocardial degeneration	2947	230	230	230
429.3	Cardiomegaly	75152	16117	15345	10721
	TOTALS	2,133,298	291,431	289,221	177,438
					175,228

a Includes the following diagnoses: 398.9, 398.90, 398.91, and 398.99.

Table 11-8
MORBIDITY ANALYSIS
CONDITIONS FOR WHICH HEART TRANSPLANTATION MAY BE INDICATED
ALL HOSPITAL DISCHARGES, UNITED STATES, 1978

ICDA-8, REV.	DIAGNOSIS	NEED CATEGORY				
		ALL AGES	AGES 5-54	AGES 10-54	AGES 5-49	AGES 10-49
171	<u>Malignant neoplasm of connective and other soft tissue</u>					
171.1	Trunk	1702	191	191	191	191
394	<u>Diseases of mitral valve</u>					
394.0	Specified as rheumatic	22961	8533	8533	6315	6315
394.9	Not specified as rheumatic	68890	34334	34022	28306	27994
395	<u>Diseases of aortic valve</u>					
395.0	Specified as rheumatic	7237	2880	2880	1599	1599
395.9	Not specified as rheumatic	62108	15806	14850	12735	11779
396	<u>Diseases of mitral and aortic valves</u>					
396.0	Specified as rheumatic	10645	4175	4175	2756	2756
396.9	Not specified as rheumatic	7617	2015	2015	1249	1249
398	Other heart disease, specified as rheumatic	30587	15165	14864	10851	10550

Table 11-8 (Continued)
MORBIDITY ANALYSIS
CONDITIONS FOR WHICH HEART TRANSPLANTATION MAY BE INDICATED
ALL HOSPITAL DISCHARGES, UNITED STATES, 1978

ICDA.8.REV.	DIAGNOSIS	NEED CATEGORY				
		ALL AGES	AGES 5-54	AGES 10-54	AGES 5-49	AGES 10-49
412	<u>Chronic ischemic heart disease</u>					
412.0	With hypertensive disease	518378	76537	76048	38480	37991
419.9	Without hypertensive disease	1615873	244118	243435	127151	126468
422	<u>Acute myocarditis</u>	2433	1525	1525	1384	1384
424	<u>Chronic disease of endocardium</u>					
424.1	Of aortic valve, nonrheumatic	1707	569	569	0	0
425	<u>Cardiomyopathy</u>	51194	23177	22512	15404	14739
427	<u>Symptomatic heart disease</u>					
427.0	Congestive heart failure	442847	32191	32040	16314	16163
427.1	Left ventricular failure	9707	1644	1644	830	830
428	<u>Other myocardial insufficiency</u>	25377	6953	6895	4076	4018
429	<u>Ill-defined heart diseases</u>					
429.9	Other and unspecified heart diseases	26957	7337	7046	4694	4403
	TOTALS	2,906,220	477,150	473,244	272,335	268,429

Table 11-9
MORBIDITY ANALYSIS
CONDITIONS FOR WHICH HEART TRANSPLANTATION MAY BE INDICATED
ALL HOSPITAL DISCHARGES, UNITED STATES, 1977

ICDA-8.REV.	DIAGNOSIS	NEED CATEGORY				
		ALL AGES	AGES 5-54	AGES 10-54	AGES 5-49	AGES 10-49
171	<u>Malignant neoplasm of connective and other soft tissue</u>					
171.1	Trunk	3328	1480	1354	1480	1314
394	<u>Diseases of mitral valve</u>					
394.0	Specified as rheumatic	21086	9345	9345	6199	6199
394.9	Not specified as rheumatic	57525	29695	29354	22348	22007
395	<u>Diseases of aortic valve</u>					
395.0	Specified as rheumatic	3458	1266	1266	808	808
395.9	Not specified as rheumatic	62625	15113	14934	12955	12776
396	<u>Diseases of mitral and aortic valves</u>					
396.0	Specified as rheumatic	8424	3125	3125	2703	2703
396.9	Not specified as rheumatic	8430	2912	2912	2361	2361
398	Other heart disease, specified as rheumatic	33397	15907	15907	12824	12824

Table 11-9 (Continued)
MORBIDITY ANALYSIS
CONDITIONS FOR WHICH HEART TRANSPLANTATION MAY BE INDICATED
ALL HOSPITAL DISCHARGES, UNITED STATES, 1977

ICDA-8.REV.	DIAGNOSIS	ALL AGES	NEED CATEGORY			
			AGES 5-54	AGES 10-54	AGES 5-49	AGES 10-49
412	<u>Chronic ischemic heart disease</u>					
412.0	With hypertensive disease	538968	76795	76795	39595	39595
419.9	Without hypertensive disease	1615251	262226	261840	134878	134492
422	<u>Acute myocarditis</u>	2698	1391	1391	1391	1391
424	<u>Chronic disease of endocardium</u>					
424.1	Of aortic valve, nonrheumatic	0	0	0	0	0
425	<u>Cardiomyopathy</u>	38613	18209	18092	18209	18092
427	<u>Symptomatic heart disease</u>					
427.0	Congestive heart failure	416158	34756	34286	18534	18064
427.1	Left ventricular failure	10519	1157	1157	546	546
428	<u>Other myocardial insufficiency</u>	26941	7089	6908	5249	5068
429	<u>Ill-defined heart diseases</u>					
429.9	Other and unspecified heart diseases	23537	4948	4698	3925	3675
	TOTALS	2,870,958	485,414	483,324	279,071	277,001

the NHDS data were available at the time this chapter was written). Table 11-10, based on the 1979, 1980, and 1981 National Hospital Discharge Survey data, shows the number of hospital discharges according to the five leading diagnoses for which heart transplantation may be indicated.

Considerable data are contained in Tables 11-5 through 11-9 and it is not easy gaining a clear picture of the major findings contained therein. Table 11-11 succinctly summarizes the year-to-year estimates of the number of hospital discharges according to heart transplant need category. Once again it is noteworthy that the variability in the number of discharges from 1977 and 1978 to 1979, 1980, and 1981 is most likely due to changes in the classification of diseases, although it could, in part, be explained by advances in the treatment of cardiovascular disease. It is obvious that there is less variation in estimates from year-to-year when the diagnoses are directly comparable.

Thus, based on hospital discharge data for 1979 through 1981 (when the same classification of diseases was used) it is estimated that between 2.1 and 2.4 million people were hospitalized with conditions for which heart transplantation may be indicated. Albeit, not all of these persons have a condition that is severe enough that heart transplantation may be considered a viable treatment option. The mortality analyses, presented in Chapter 12, are more appropriate for making such a determination.

Detailed age, sex, and race hospital discharge tables for 1981, 1980, 1979, 1978, and 1977 are provided in Appendixes 11-A through 11-E at the end of this chapter. Included with these tables are

Table 11-10
 Number of Hospital Discharges Per Year Based On
 Primary Indications For Heart Transplantation,
 Ages 10-54 Years Only

<u>DISCHARGE DIAGNOSIS</u>	<u>NUMBER OF DISCHARGES BY YEAR</u>		
	<u>1979</u>	<u>1980</u>	<u>1981</u>
Coronary atherosclerosis	131,292	128,613	122,724
Congestive heart failure	49,326	46,014	49,174
Other and unspecified rheumatic heart disease	26,392	24,967	23,019
Cardiomegaly	15,345	16,670	15,244
Other primary cardiomyopathy	14,060	16,091	17,147

Table 11-11
 Year-to-Year Estimates of the Number of Hospital Discharges
 For Persons With Conditions For Which Heart Transplantation
 May Be Indicated According to Need Category

<u>YEAR</u>	<u>NEED CATEGORY^a</u>				
	<u>ALL AGES</u>	<u>AGES 5-54</u>	<u>AGES 10-54</u>	<u>AGES 5-49</u>	<u>AGES 10-49</u>
1981 ^b	2,439,698	269,771	267,486	152,141	149,856
1980 ^b	2,209,414	282,795	281,438	168,394	167,037
1979 ^b	2,133,298	291,431	289,221	177,438	175,288
1978 ^c	2,906,220	477,150	473,244	272,335	268,429
1977 ^c	2,870,958	485,414	483,324	279,071	277,001

^aIncludes deaths where age was not stated.

^bBased on International Classification of Diseases, 9th Revision.

^cBased on International Classification of Diseases, 8th Revision.

several summary tables that show gross estimates of number of hospital discharges by need category for each year, not specific according to diagnosis at discharge. There is one summary table for the following need categories: all ages, ages 5-54, ages 10-54, ages 5-49, and ages 10-49. Unfortunately, there are year-to-year variations in the race specificity of the hospital discharge data. For example, for some years data are available for blacks only, while in other years blacks are combined in the "all other" category. Thus, great care must be taken in reviewing the tables in the Appendixes.

In order to distill as much as possible the data contained in Appendixes 11-A through 11-E, several summary tables have been prepared that show the race and sex breakdowns by year for each of the need categories. In reviewing these tables it is particularly important to direct attention to the title of each table which indicates what need category the data refer to. This can be highlighted as follows:

<u>TABLE</u>	<u>NEED CATEGORY</u>
11-12	All Ages
11-13	Ages 5-54
11-14	Ages 10-54
11-15	Ages 5-49
11-16	Ages 10-49

Of these tables, Table 11-14 contains the data pertaining to the need category appropriate to the current patient selection criteria. Once again, there is considerable variability in the hospital discharge

Table 11-12
Race and Sex Breakdown for "All Ages" Need Category
(Hospital Discharges)

RACE/SEX	YEAR				
	1981	1980	1979	1978	1977
ALL RACES	2,439,698	2,209,414	2,133,298	2,906,220	2,870,958
Male	1,155,271	1,055,881	1,071,056	1,505,925	1,467,352
Female	1,284,427	1,153,533	1,062,242	1,400,295	1,403,606
WHITE ONLY	2,209,875	1,790,324	1,713,196	2,323,865	2,329,457
Male	1,054,499	858,204	868,727	1,218,488	1,202,525
Female	1,155,376	932,120	844,469	1,105,377	1,126,932
ALL OTHER ^a	NC ^b	195,962	175,429	250,113	219,648
Male	NC	90,492	82,898	119,509	106,085
Female	NC	105,470	92,531	130,604	113,563
OTHER ONLY	49,563	NC	NC	NC	NC
Male	20,774	NC	NC	NC	NC
Female	28,789	NC	NC	NC	NC
BLACK ONLY	180,260	NC	NC	NC	NC
Male	80,226	NC	NC	NC	NC
Female	100,034	NC	NC	NC	NC
NOT STATED	NC	223,128	244,673	332,242	321,853
Male	NC	107,185	119,049	167,928	158,742
Female	NC	115,943	125,624	164,314	163,111

^aIncludes blacks.

^bNot coded.

Table 11-13
Race and Sex Breakdown for "Ages 5-54" Need Category
(Hospital Discharges)

RACE/SEX	<u>YEAR</u>				
	<u>1981</u>	<u>1980</u>	<u>1979</u>	<u>1978</u>	<u>1977</u>
ALL RACES	269,771	282,795	291,431	477,150	485,414
Male	161,500	163,445	178,343	297,817	309,324
Female	108,271	119,350	113,088	179,333	176,090
WHITE ONLY	224,515	220,378	219,438	364,515	381,155
Male	141,587	128,241	141,563	242,208	254,090
Female	82,928	92,137	77,875	122,307	127,065
ALL OTHER ^a	NC ^b	39,180	44,446	64,420	52,398
Male	NC	19,972	19,158	28,947	23,392
Female	NC	19,208	25,288	35,473	29,006
OTHER ONLY	8,703	NC	NC	NC	NC
Male	3,693	NC	NC	NC	NC
Female	5,010	NC	NC	NC	NC
BLACK ONLY	36,553	NC	NC	NC	NC
Male	16,448	NC	NC	NC	NC
Female	20,105	NC	NC	NC	NC
NOT STATED	NC	23,237	27,547	48,215	51,861
Male	NC	15,232	17,622	26,662	31,842
Female	NC	8,005	9,925	21,553	20,019

^aIncludes blacks.

^bNot coded.

Table 11-14
Race and Sex Breakdowns for "Ages 10-54" Need Category
(Hospital Discharges)

RACE/SEX	<u>YEAR</u>				
	<u>1981</u>	<u>1980</u>	<u>1979</u>	<u>1978</u>	<u>1977</u>
ALL RACES	267,486	281,438	289,221	473,244	483,324
Male	159,922	162,793	177,174	296,227	307,941
Female	107,564	118,645	112,047	177,017	175,383
WHITE ONLY	222,809	219,513	217,796	361,674	379,335
Male	140,588	128,081	140,530	240,981	252,707
Female	82,221	91,432	77,266	120,693	126,628
ALL OTHER ^a	NC ^b	38,688	43,878	63,762	52,249
Male	NC	19,480	19,022	28,584	23,392
Female	NC	19,208	24,856	35,178	28,857
OTHER ONLY	8,413	NC	NC	NC	NC
Male	3,403	NC	NC	NC	NC
Female	5,010	NC	NC	NC	NC
BLACK ONLY	36,264	NC	NC	NC	NC
Male	16,159	NC	NC	NC	NC
Female	20,105	NC	NC	NC	NC
NOT STATED	NC	23,237	27,547	47,808	51,740
Male	NC	15,232	17,622	26,662	31,842
Female	NC	8,005	9,925	21,146	19,898

^aIncludes blacks.

^bNot coded.

Table 11-15
Race and Sex Breakdowns for "Ages 5-49" Need Category
(Hospital Discharges)

<u>RACE/SEX</u>	<u>YEAR</u>				
	<u>1981</u>	<u>1980</u>	<u>1979</u>	<u>1978</u>	<u>1977</u>
ALL RACES	152,141	168,394	177,438	272,335	279,091
Male	89,689	94,207	104,257	166,910	177,030
Female	62,452	74,187	73,181	105,425	102,061
WHITE ONLY	120,344	125,344	126,863	202,484	215,849
Male	75,256	70,646	80,799	132,731	144,013
Female	45,088	54,698	46,064	69,753	71,836
ALL OTHER ^a	NC ^b	29,715	31,371	44,628	35,308
Male	NC	15,561	12,177	21,411	14,799
Female	NC	14,154	19,194	23,217	20,509
OTHER ONLY	6,839	NC	NC	NC	NC
Male	3,106	NC	NC	NC	NC
Female	3,733	NC	NC	NC	NC
BLACK ONLY	24,958	NC	NC	NC	NC
Male	11,555	NC	NC	NC	NC
Female	13,403	NC	NC	NC	NC
NOT STATED	NC	13,335	19,204	25,223	27,934
Male	NC	8,000	11,281	12,768	18,218
Female	NC	5,335	7,923	12,455	9,716

^aIncludes blacks.

^bNot coded.

Table 11-16
Race and Sex Breakdowns for "Ages 10-49" Need Category
(Hospital Discharges)

<u>RACE/SEX</u>	<u>YEAR</u>				
	<u>1981</u>	<u>1980</u>	<u>1979</u>	<u>1978</u>	<u>1977</u>
ALL RACES	149,856	167,037	175,228	268,419	277,001
Male	88,111	93,555	103,088	165,320	175,647
Female	61,745	73,482	72,140	103,109	101,354
WHITE ONLY	118,638	124,479	125,221	199,643	214,029
Male	74,257	70,486	79,766	131,504	142,630
Female	44,381	53,993	45,455	68,139	71,399
ALL OTHER ^a	NC ^b	29,223	30,803	43,970	35,159
Male	NC	15,069	12,041	21,048	14,799
Female	NC	14,154	18,762	22,922	20,360
OTHER ONLY	6,549	NC	NC	NC	NC
Male	2,816	NC	NC	NC	NC
Female	3,733	NC	NC	NC	NC
BLACK ONLY	24,669	NC	NC	NC	NC
Male	11,266	NC	NC	NC	NC
Female	13,403	NC	NC	NC	NC
NOT STATED	NC	13,335	19,204	24,816	27,813
Male	NC	8,000	11,281	12,768	18,218
Female	NC	5,335	7,923	12,048	9,595

^aIncludes blacks.

^bNot coded.

estimates depending upon which coding system (ICDA.8 or ICD.9.CM) was used to code the data. The best estimates within these tables are those for 1981 through 1979.

Tables 11-12 through 11-16 also reveal the dramatic affect of age on hospital discharges. For example, in 1981 nearly 2.5 million people of all ages were discharged from hospitals with a discharge diagnosis appropriate for heart transplantation. However, when an age restriction of 10-54 years is imposed on the data, only about 267,000 people were discharged. If age is further restricted to ages 10-49, only 149,800 discharges occurred.

An examination of Table 11-14 provides some idea of the prevalence of the conditions for which heart transplantation may be indicated given prevailing patient age selection criteria. Again, these are estimates based only on utilization of hospital services. Many more people may have these conditions but their condition may not be severe enough to require hospitalization. Only a population-based epidemiological study could yield the most satisfactory estimates of prevalence (see Chapter 10).

Based on Table 11-14, it can be concluded that in 1981 the distribution of persons who have conditions for which heart transplantation may be indicated according to race and sex would be as follows:

140,588	White males
82,221	White females
3,403	Other only males (excluding blacks)

5,010	Other only females (excluding blacks)
16,159	Black males
20,105	Black females

More detailed data on the age, sex, and race breakdown of all persons between the ages of 10 and 54 discharged from hospitals in 1981, 1980, 1979, 1978, and 1977 are provided in Tables 11-17, 11-18, 11-19, 11-20, and 11-21, respectively. These tables differ from Tables 11-12 through 11-16 in that they also contain detailed age data. As noted above, such detailed data for all need categories of patients are provided in Appendixes 11-A through 11-E.

D. CONCLUSION

In this chapter hospital discharge data have been presented as an indicator of the prevalence of those conditions for which heart transplantation may be indicated. Morbidity, however, is a crude indication of the need for heart transplantation. Moreover, given the limitations of the data upon which these analyses are based, it is difficult to provide more refined estimates. Ultimately, therefore, an analysis of mortality data is required to further refine estimates of need. In Chapter 12, such an analysis is undertaken.

Table 11-17
 ALL PERSONS DISCHARGED FROM HOSPITALS ALIVE IN U.S., 1981
 AGES 10-54 ONLY
 SELECTED CONDITIONS FOR WHICH HEART TRANSPLANTATION IS INDICATED

<u>AGE</u>	<u>ALL RACES</u>		<u>WHITE</u>		<u>OTHER ONLY</u>		<u>BLACK ONLY</u>	
	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>
0-4								
5-9								
10-14	869	1155	587	669	157	486	125	0
15-19	1851	3775	1669	2521	0	264	182	990
20-24	1497	3799	1356	2376	0	764	141	659
25-29	6112	7004	4194	3773	645	280	1273	2951
30-34	5942	4635	5033	2934	0	138	909	1563
35-39	11423	5589	9273	3561	562	519	1588	1509
40-44	18542	12356	15550	9972	343	424	2649	1960
45-49	41875	23432	36595	18575	1109	858	4399	3771
50-54	71811	45819	66331	37840	587	1277	4893	6702
55-59								
60-64								
65-69								
70-74								
75 up								
Not Stated	0	0	0	0	0	0	0	0
TOTALS	159922	107564	140588	82221	3403	5010	16159	20105
SUM BY RACE	267486		222809		8413		36264	

Table 11-18
 ALL PERSONS DISCHARGED FROM HOSPITALS ALIVE IN U.S., 1980
 AGES 10-54 ONLY
 SELECTED CONDITIONS FOR WHICH HEART TRANSPLANTATION IS INDICATED

<u>AGE</u>	<u>ALL RACES</u>		<u>WHITE</u>		<u>ALL OTHER</u>		<u>NOT STATED</u>	
	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>
0-4								
5-9								
10-14	939	1569	646	1251	293	188	0	130
15-19	821	2311	524	1561	186	330	111	420
20-24	1600	3497	1413	2554	79	533	108	410
25-29	3454	6307	2324	5309	881	848	249	150
30-34	8127	7048	5529	4768	2468	1415	130	865
35-39	16343	11940	11981	6873	2696	4344	1666	723
40-44	23830	11364	18712	7848	3560	2857	1558	659
45-49	38441	29446	29357	23829	4906	3639	4178	1978
50-54	69238	45163	57595	37439	4411	5054	7232	2670
55-59								
60-64								
65-69								
70-74								
75 up								
Not Stated	0	0	0	0	0	0	0	0
TOTALS	162793	118645	128081	91432	19480	19208	15232	8005
SUM BY RACE	281438		219513		38688		23237	

Table 11-19
 ALL PERSONS DISCHARGED FROM HOSPITALS ALIVE IN U.S., 1979
 AGES 10-54 ONLY
 SELECTED CONDITIONS FOR WHICH HEART TRANSPLANTATION IS INDICATED

<u>AGE</u>	<u>ALL RACES</u>		<u>WHITE</u>		<u>ALL OTHER</u>		<u>NOT STATED</u>	
	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>
0-4								
5-9								
10-14	589	768	180	145	409	211	0	412
15-19	1494	3077	1020	1536	320	1067	154	474
20-24	1762	6884	1485	3280	103	3202	174	402
25-29	2391	4311	2002	2992	389	646	0	673
30-34	6235	8687	4348	6630	1212	1626	675	431
35-39	13748	9984	9885	6238	2243	2286	1620	1460
40-44	25343	13293	19823	9076	3048	3757	2472	460
45-49	51526	25136	41023	15558	4317	5967	6186	3611
50-54	74086	39907	60764	31811	6981	6094	6341	2002
55-59								
60-64								
65-69								
70-74								
75 up								
Not Stated	0	0	0	0	0	0	0	0
TOTALS	177174	122047	140530	77266	19022	24856	17622	9925
SUM BY RACE	289221		217796		43878		27547	

Table 11-20
 ALL PERSONS DISCHARGED FROM HOSPITALS ALIVE IN U.S., 1978
 AGES 10-54 ONLY
 SELECTED CONDITIONS FOR WHICH HEART TRANSPLANTATION IS INDICATED

<u>AGE</u>	<u>ALL RACES</u>		<u>WHITE</u>		<u>ALL OTHER</u>		<u>NOT STATED</u>	
	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>
0-4								
5-9								
10-14	2981	1353	2855	835	126	518	0	0
15-19	2806	3321	2560	1703	246	1474	0	144
20-24	4842	6050	3799	3437	1043	2102	0	511
25-29	4571	7433	2872	5680	1517	904	182	849
30-34	11497	8657	7174	5970	2144	2253	2179	434
35-39	25363	17072	19274	9539	4713	5664	1376	1869
40-44	40215	22134	33087	14911	4005	4368	3123	2855
45-49	73045	37089	59883	26064	7254	5639	5908	5386
50-54	130907	73908	109477	52554	7536	12256	13894	9098
55-59								
60-64								
65-69								
70-74								
75 up								
Not Stated	0	0	0	0	0	0	0	0
TOTALS	296227	177017	240981	120693	28584	35178	26662	21146
SUM BY RACE	473244		361674		63762		47808	

Table 11-21
 ALL PERSONS DISCHARGED FROM HOSPITALS ALIVE IN U.S., 1977
 AGES 10-54 ONLY
 SELECTED CONDITIONS FOR WHICH HEART TRANSPLANTATION IS INDICATED

<u>AGE</u>	<u>ALL RACES</u>		<u>WHITE</u>		<u>ALL OTHER</u>		<u>NOT STATED</u>	
	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>
0-4								
5-9								
10-14	2639	1900	2206	1401	256	301	177	198
15-19	1232	2503	858	1689	189	638	185	176
20-24	3054	5349	2147	4598	328	751	579	0
25-29	6294	7876	4011	5533	1503	1614	780	729
30-34	9969	7906	8313	5897	795	1194	861	815
35-39	21373	13369	15735	8998	3496	3826	2142	545
40-44	53068	25195	44849	15530	2824	6173	5395	3492
45-49	78018	37256	64511	27753	5408	5863	8099	3640
50-54	132294	74029	110077	55229	8593	8497	13624	10303
55-59								
60-64								
65-69								
70-74								
75 up								
Not Stated	0	0	0	0	0	0	0	0
TOTALS	307941	175383	252707	126628	23392	28857	31842	19898
SUM BY RACE	483324		379335		52249		51740	

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APPENDIX 11-A

DETAILED MORBIDITY TABLES FOR 1981

Table 11-A-1
ALL PERSONS DISCHARGED FROM HOSPITALS ALIVE IN U.S., 1981
MALIGNANT NEOPLASM OF THE HEART
ICD-9-CM 164.1

<u>AGE</u>	<u>ALL RACES</u>		<u>WHITE</u>		<u>OTHER ONLY</u>		<u>BLACK ONLY</u>	
	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>
0-4	0	0	0	0	0	0	0	0
5-9	0	0	0	0	0	0	0	0
10-14	0	0	0	0	0	0	0	0
15-19	0	0	0	0	0	0	0	0
20-24	0	0	0	0	0	0	0	0
25-29	0	0	0	0	0	0	0	0
30-34	0	0	0	0	0	0	0	0
35-39	0	0	0	0	0	0	0	0
40-44	0	0	0	0	0	0	0	0
45-49	0	0	0	0	0	0	0	0
50-54	0	0	0	0	0	0	0	0
55-59	0	0	0	0	0	0	0	0
60-64	0	0	0	0	0	0	0	0
65-69	0	0	0	0	0	0	0	0
70-74	0	0	0	0	0	0	0	0
75 up	0	0	0	0	0	0	0	0
Not Stated	0	0	0	0	0	0	0	0
TOTALS	0	0	0	0	0	0	0	0
SUM BY RACE	0		0		0		0	

Table 11-A-2
ALL PERSONS DISCHARGED FROM HOSPITALS ALIVE IN U.S., 1981
MITRAL STENOSIS
ICD-9-CM 394.0

<u>AGE</u>	<u>ALL RACES</u>		<u>WHITE</u>		<u>OTHER ONLY</u>		<u>BLACK ONLY</u>	
	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>
0-4	0	79	0	79	0	0	0	0
5-9	0	0	0	0	0	0	0	0
10-14	0	0	0	0	0	0	0	0
15-19	0	0	0	0	0	0	0	0
20-24	0	0	0	0	0	0	0	0
25-29	0	89	0	89	0	0	0	0
30-34	263	216	263	0	0	138	0	78
35-39	183	909	183	705	0	204	0	0
40-44	544	191	544	191	0	0	0	0
45-49	0	1324	0	818	0	150	0	356
50-54	113	2370	113	1946	0	424	0	0
55-59	0	2262	0	2138	0	124	0	0
60-64	0	1224	0	1224	0	0	0	0
65-69	313	2861	313	2861	0	0	0	0
70-74	0	736	0	736	0	0	0	0
75 up	0	1780	0	1780	0	0	0	0
Not Stated	0	0	0	0	0	0	0	0
TOTALS	1416	14041	1416	12567	0	1040	0	434
SUM BY RACE	15457		13983		1040		434	

Table 11-A-3
ALL PERSONS DISCHARGED FROM HOSPITALS ALIVE IN U.S., 1981
RHEUMATIC MITRAL INSUFFICIENCY
ICD-9-CM 394.1

	<u>ALL RACES</u>		<u>WHITE</u>		<u>OTHER ONLY</u>		<u>BLACK ONLY</u>	
<u>AGE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>
0-4	0	0	0	0	0	0	0	0
5-9	143	0	143	0	0	0	0	0
10-14	0	0	0	0	0	0	0	0
15-19	0	518	0	322	0	0	0	196
20-24	0	141	0	0	0	0	0	141
25-29	0	128	0	0	0	0	0	128
30-34	167	0	0	0	0	0	167	0
35-39	0	0	0	0	0	0	0	0
40-44	114	178	114	178	0	0	0	0
45-49	342	0	342	0	0	0	0	0
50-54	0	330	0	330	0	0	0	0
55-59	34	389	34	189	0	0	0	200
60-64	309	231	309	231	0	0	0	0
65-69	137	81	237	81	0	0	0	0
70-74	400	144	400	144	0	0	0	0
75 up	125	172	125	172	0	0	0	0
Not Stated	0	0	0	0	0	0	0	0
TOTALS	1871	2312	1704	1647	0	0	167	665
SUM BY RACE	4183		3351		0		832	

Table 11-A-4
ALL PERSONS DISCHARGED FROM HOSPITALS ALIVE IN U.S., 1981
MITRAL STENOSIS WITH INSUFFICIENCY
ICD-9-CM 394.2

	<u>ALL RACES</u>		<u>WHITE</u>		<u>OTHER ONLY</u>		<u>BLACK ONLY</u>	
<u>AGE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>
0-4	0	0	0	0	0	0	0	0
5-9	0	0	0	0	0	0	0	0
10-14	0	0	0	0	0	0	0	0
15-19	0	0	0	0	0	0	0	0
20-24	0	509	0	509	0	0	0	0
25-29	0	0	0	0	0	0	0	0
30-34	0	0	0	0	0	0	0	0
35-39	0	126	0	126	0	0	0	0
40-44	0	0	0	0	0	0	0	0
45-49	0	0	0	0	0	0	0	0
50-54	0	116	0	116	0	0	0	0
55-59	126	179	126	179	0	0	0	0
60-64	0	190	0	190	0	0	0	0
65-69	137	440	137	440	0	0	0	0
70-74	0	150	0	0	0	0	0	150
75 up	0	0	0	0	0	0	0	0
Not Stated	0	0	0	0	0	0	0	0
TOTALS	263	1710	263	1560	0	0	0	150
SUM BY RACE	1973		1823		0		150	

Table 11-A-5
ALL PERSONS DISCHARGED FROM HOSPITALS ALIVE IN U.S., 1981
OTHER AND UNSPECIFIED MITRAL VALVE DISEASES
ICD-9-CM 394.9

<u>AGE</u>	<u>ALL RACES</u>		<u>WHITE</u>		<u>OTHER ONLY</u>		<u>BLACK ONLY</u>	
	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>
0-4	0	0	0	0	0	0	0	0
5-9	0	0	0	0	0	0	0	0
10-14	0	0	0	0	0	0	0	0
15-19	0	407	0	407	0	0	0	0
20-24	0	297	0	178	0	0	0	119
25-29	635	0	635	0	0	0	0	0
30-34	0	271	0	271	0	0	0	0
35-39	119	0	119	0	0	0	0	0
40-44	559	0	409	0	0	0	150	0
45-49	0	368	0	368	0	0	0	0
50-54	481	1362	481	1169	0	0	0	193
55-59	392	550	392	550	0	0	0	0
60-64	0	400	0	400	0	0	0	0
65-69	699	707	699	707	0	0	0	0
70-74	746	131	746	131	0	0	0	0
75 up	443	1985	443	1771	0	0	0	214
Not Stated	0	0	0	0	0	0	0	0
TOTALS	4074	6478	3924	5952	0	0	150	526
SUM BY RACE	10552		9876		0		676	

Table 11-A-6
ALL PERSONS DISCHARGED FROM HOSPITALS ALIVE IN U.S., 1981
RHEUMATIC AORTIC STENOSIS
ICD-9-CM 395.0

AGE	ALL RACES		WHITE		OTHER ONLY		BLACK ONLY	
	MALE	FEMALE	MALE	FEMALE	MALE	FEMALE	MALE	FEMALE
0-4	0	0	0	0	0	0	0	0
5-9	0	0	0	0	0	0	0	0
10-14	0	0	0	0	0	0	0	0
15-19	0	0	0	0	0	0	0	0
20-24	0	0	0	0	0	0	0	0
25-29	0	0	0	0	0	0	0	0
30-34	0	0	0	0	0	0	0	0
35-39	0	0	0	0	0	0	0	0
40-44	0	0	0	0	0	0	0	0
45-49	0	0	0	0	0	0	0	0
50-54	235	0	235	0	0	0	0	0
55-59	0	0	0	0	0	0	0	0
60-64	0	32	0	0	0	0	0	32
65-69	0	234	0	234	0	0	0	0
70-74	0	111	0	111	0	0	0	0
75 up	0	0	0	0	0	0	0	0
Not Stated	0	0	0	0	0	0	0	0
TOTALS	235	377	235	345	0	0	0	32
SUM BY RACE	612		580		0		32	

Table 11-A-7
ALL PERSONS DISCHARGED FROM HOSPITALS ALIVE IN U.S., 1981
RHEUMATIC AORTIC INSUFFICIENCY
ICD-9-CM 395.1

AGE	ALL RACES		WHITE		OTHER ONLY		BLACK ONLY	
	MALE	FEMALE	MALE	FEMALE	MALE	FEMALE	MALE	FEMALE
0-4	0	0	0	0	0	0	0	0
5-9	0	0	0	0	0	0	0	0
10-14	0	0	0	0	0	0	0	0
15-19	0	0	0	0	0	0	0	0
20-24	0	0	0	0	0	0	0	0
25-29	0	0	0	0	0	0	0	0
30-34	0	0	0	0	0	0	0	0
35-39	0	0	0	0	0	0	0	0
40-44	0	35	0	0	0	0	0	35
45-49	0	0	0	0	0	0	0	0
50-54	0	0	0	0	0	0	0	0
55-59	0	0	0	0	0	0	0	0
60-64	0	0	0	0	0	0	0	0
65-69	0	0	0	0	0	0	0	0
70-74	0	0	0	0	0	0	0	0
75 up	0	235	0	235	0	0	0	0
Not Stated	0	0	0	0	0	0	0	0
TOTALS	0	270	0	235	0	0	0	35
SUM BY RACE	270		235		0		35	

Table 11-A-8
ALL PERSONS DISCHARGED FROM HOSPITALS ALIVE IN U.S., 1981
RHEUMATIC AORTIC STENOSIS WITH INSUFFICIENCY
ICD-9-CM 395.2

AGE	ALL RACES		WHITE		OTHER ONLY		BLACK ONLY	
	MALE	FEMALE	MALE	FEMALE	MALE	FEMALE	MALE	FEMALE
0-4	0	0	0	0	0	0	0	0
5-9	0	0	0	0	0	0	0	0
10-14	0	0	0	0	0	0	0	0
15-19	0	0	0	0	0	0	0	0
20-24	0	0	0	0	0	0	0	0
25-29	0	0	0	0	0	0	0	0
30-34	0	0	0	0	0	0	0	0
35-39	0	0	0	0	0	0	0	0
40-44	0	0	0	0	0	0	0	0
45-49	0	0	0	0	0	0	0	0
50-54	0	0	0	0	0	0	0	0
55-59	0	0	0	0	0	0	0	0
60-64	0	0	0	0	0	0	0	0
65-69	0	0	0	0	0	0	0	0
70-74	0	0	0	0	0	0	0	0
75 up	0	0	0	0	0	0	0	0
Not Stated	0	0	0	0	0	0	0	0
TOTALS	0	0	0	0	0	0	0	0
SUM BY RACE	0		0		0		0	

Table 11-A-9
ALL PERSONS DISCHARGED FROM HOSPITALS ALIVE IN U.S., 1981
OTHER AND UNSPECIFIED RHEUMATIC AORTIC DISEASES
ICD-9-CM 395.9

<u>AGE</u>	<u>ALL RACES</u>		<u>WHITE</u>		<u>OTHER ONLY</u>		<u>BLACK ONLY</u>	
	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>
0-4	0	0	0	0	0	0	0	0
5-9	0	0	0	0	0	0	0	0
10-14	0	0	0	0	0	0	0	0
15-19	0	0	0	0	0	0	0	0
20-24	0	0	0	0	0	0	0	0
25-29	183	0	0	0	183	0	0	0
30-34	0	0	0	0	0	0	0	0
35-39	0	0	0	0	0	0	0	0
40-44	179	0	179	0	0	0	0	0
45-49	188	0	188	0	0	0	0	0
50-54	0	0	0	0	0	0	0	0
55-59	0	0	0	0	0	0	0	0
60-64	0	0	0	0	0	0	0	0
65-69	0	107	0	107	0	0	0	0
70-74	0	0	0	0	0	0	0	0
75 up	0	0	0	0	0	0	0	0
Not Stated	0	0	0	0	0	0	0	0
TOTALS	550	107	367	107	183	0	0	0
SUM BY RACE	657		474		183		0	

Table 11-A-10
ALL PERSONS DISCHARGED FROM HOSPITALS ALIVE IN U.S., 1981
MITRAL VALVE STENOSIS AND AORTIC VALVE STENOSIS
ICD-9-CM 396.0

<u>AGE</u>	<u>ALL RACES</u>		<u>WHITE</u>		<u>OTHER ONLY</u>		<u>BLACK ONLY</u>	
	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>
0-4	0	0	0	0	0	0	0	0
5-9	0	0	0	0	0	0	0	0
10-14	0	0	0	0	0	0	0	0
15-19	0	0	0	0	0	0	0	0
20-24	0	102	0	102	0	0	0	0
25-29	0	0	0	0	0	0	0	0
30-34	0	0	0	0	0	0	0	0
35-39	0	0	0	0	0	0	0	0
40-44	0	0	0	0	0	0	0	0
45-49	0	0	0	0	0	0	0	0
50-54	134	0	134	0	0	0	0	0
55-59	0	0	0	0	0	0	0	0
60-64	0	0	0	0	0	0	0	0
65-69	0	0	0	0	0	0	0	0
70-74	254	279	254	279	0	0	0	0
75 up	122	383	122	383	0	0	0	0
Not Stated	0	0	0	0	0	0	0	0
TOTALS	510	764	510	764	0	0	0	0
SUM BY RACE	1274		1274		0		0	

Table 11-A-11
ALL PERSONS DISCHARGED FROM HOSPITALS ALIVE IN U.S., 1981
MITRAL VALVE STENOSIS AND AORTIC VALVE INSUFFICIENCY
ICD-9-CM 396.1

AGE	ALL RACES		WHITE		OTHER ONLY		BLACK ONLY	
	MALE	FEMALE	MALE	FEMALE	MALE	FEMALE	MALE	FEMALE
0-4	0	0	0	0	0	0	0	0
5-9	0	0	0	0	0	0	0	0
10-14	0	0	0	0	0	0	0	0
15-19	0	0	0	0	0	0	0	0
20-24	0	0	0	0	0	0	0	0
25-29	0	0	0	0	0	0	0	0
30-34	0	0	0	0	0	0	0	0
35-39	0	0	0	0	0	0	0	0
40-44	167	316	167	316	0	0	0	0
45-49	0	439	0	439	0	0	0	0
50-54	0	0	0	0	0	0	0	0
55-59	0	0	0	0	0	0	0	0
60-64	0	274	0	274	0	0	0	0
65-69	0	151	0	151	0	0	0	0
70-74	0	182	0	182	0	0	0	0
75 up	0	274	0	274	0	0	0	0
Not Stated	0	0	0	0	0	0	0	0
TOTALS	167	1636	167	1636	0	0	0	0
SUM BY RACE	1803		1803		0		0	

Table 11-A-12
ALL PERSONS DISCHARGED FROM HOSPITALS ALIVE IN U.S., 1981
MITRAL VALVE INSUFFICIENCY AND AORTIC VALVE STENOSIS
ICD-9-CM 396.2

<u>AGE</u>	<u>ALL RACES</u>		<u>WHITE</u>		<u>OTHER ONLY</u>		<u>BLACK ONLY</u>	
	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>
0-4	0	0	0	0	0	0	0	0
5-9	0	0	0	0	0	0	0	0
10-14	0	0	0	0	0	0	0	0
15-19	0	0	0	0	0	0	0	0
20-24	0	0	0	0	0	0	0	0
25-29	0	0	0	0	0	0	0	0
30-34	0	0	0	0	0	0	0	0
35-39	0	0	0	0	0	0	0	0
40-44	0	227	0	227	0	0	0	0
45-49	224	0	224	0	0	0	0	0
50-54	0	0	0	0	0	0	0	0
55-59	0	0	0	0	0	0	0	0
60-64	0	0	0	0	0	0	0	0
65-69	0	0	0	0	0	0	0	0
70-74	169	0	169	0	0	0	0	0
75 up	421	1578	421	1444	0	134	0	0
Not Stated	0	0	0	0	0	0	0	0
TOTALS	814	1805	814	1671	0	124	0	0
SUM BY RACE	2619		2485		234		0	

Table 11-A-13
ALL PERSONS DISCHARGED FROM HOSPITALS ALIVE IN U.S., 1981
MITRAL VALVE INSUFFICIENCY AND AORTIC VALVE INSUFFICIENCY
ICD-9-CM 396.3

AGE	ALL RACES		WHITE		OTHER ONLY		BLACK ONLY	
	MALE	FEMALE	MALE	FEMALE	MALE	FEMALE	MALE	FEMALE
0-4	0	0	0	0	0	0	0	0
5-9	0	0	0	0	0	0	0	0
10-14	0	0	0	0	0	0	0	0
15-19	0	0	0	0	0	0	0	0
20-24	0	147	0	0	0	147	0	0
25-29	192	197	192	0	0	0	0	197
30-34	0	0	0	0	0	0	0	0
35-39	0	0	0	0	0	0	0	0
40-44	0	0	0	0	0	0	0	0
45-49	0	228	0	0	0	0	228	0
50-54	0	228	0	228	0	0	0	0
55-59	0	87	0	0	0	87	0	0
60-64	0	117	0	117	0	0	0	0
65-69	0	0	0	0	0	0	0	0
70-74	154	0	154	0	0	0	0	0
75 up	334	401	188	401	146	0	0	0
Not Stated	0	0	0	0	0	0	0	0
TOTALS	680	1405	534	746	146	234	228	197
SUM BY RACE	2085		1280		380		425	

Table 11-A-14
ALL PERSONS DISCHARGED FROM HOSPITALS ALIVE IN U.S., 1981
MULTIPLE INVOLVEMENT OF MITRAL AND AORTIC VALVES
ICD-9-CM 396.8

<u>AGE</u>	<u>ALL RACES</u>		<u>WHITE</u>		<u>OTHER ONLY</u>		<u>BLACK ONLY</u>	
	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>
0-4	0	0	0	0	0	0	0	0
5-9	0	0	0	0	0	0	0	0
10-14	0	0	0	0	0	0	0	0
15-19	0	0	0	0	0	0	0	0
20-24	0	0	0	0	0	0	0	0
25-29	0	0	0	0	0	0	0	0
30-34	0	0	0	0	0	0	0	0
35-39	284	0	284	0	0	0	0	0
40-44	0	0	0	0	0	0	0	0
45-49	0	108	0	108	0	0	0	0
50-54	218	193	0	193	0	0	218	0
55-59	0	98	0	0	0	98	0	0
60-64	0	162	0	162	0	0	0	0
65-69	0	0	0	0	0	0	0	0
70-74	0	0	0	0	0	0	0	0
75 up	0	0	0	0	0	0	0	0
Not Stated	0	0	0	0	0	0	0	0
TOTALS	502	561	284	463	0	98	218	0
SUM BY RACE	1063		747		98		218	

Table 11-A-15
ALL PERSONS DISCHARGED FROM HOSPITALS ALIVE IN U.S., 1981
MULTIPLE AND AORTIC VALVE DISEASES, UNSPECIFIED
ICD-9-CM 396.9

<u>AGE</u>	<u>ALL RACES</u>		<u>WHITE</u>		<u>OTHER ONLY</u>		<u>BLACK ONLY</u>	
	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>
0-4	0	0	0	0	0	0	0	0
5-9	0	0	0	0	0	0	0	0
10-14	0	0	0	0	0	0	0	0
15-19	0	0	0	0	0	0	0	0
20-24	0	0	0	0	0	0	0	0
25-29	0	0	0	0	0	0	0	0
30-34	0	0	0	0	0	0	0	0
35-39	0	0	0	0	0	0	0	0
40-44	0	0	0	0	0	0	0	0
45-49	0	0	0	0	0	0	0	0
50-54	0	172	0	172	0	0	0	0
55-59	0	0	0	0	0	0	0	0
60-64	0	0	0	0	0	0	0	0
65-69	643	317	643	317	0	0	0	0
70-74	183	0	183	0	0	0	0	0
75 up	0	160	0	160	0	0	0	0
Not Stated	0	0	0	0	0	0	0	0
TOTALS	826	649	826	649	0	0	0	0
SUM BY RACE	1475		1475		0		0	

Table 11-A-16
ALL PERSONS DISCHARGED FROM HOSPITALS ALIVE IN U.S., 1981
RHEUMATIC MYOCARDITIS
ICD-9-CM 398.0

<u>AGE</u>	<u>ALL RACES</u>		<u>WHITE</u>		<u>OTHER ONLY</u>		<u>BLACK ONLY</u>	
	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>
0-4	0	0	0	0	0	0	0	0
5-9	0	0	0	0	0	0	0	0
10-14	0	0	0	0	0	0	0	0
15-19	0	0	0	0	0	0	0	0
20-24	0	0	0	0	0	0	0	0
25-29	0	162	0	162	0	0	0	0
30-34	0	0	0	0	0	0	0	0
35-39	0	0	0	0	0	0	0	0
40-44	0	0	0	0	0	0	0	0
45-49	510	0	510	0	0	0	0	0
50-54	0	0	0	0	0	0	0	0
55-59	0	0	0	0	0	0	0	0
60-64	0	0	0	0	0	0	0	0
65-69	0	0	0	0	0	0	0	0
70-74	0	0	0	0	0	0	0	0
75 up	173	0	173	0	0	0	0	0
Not Stated	0	0	0	0	0	0	0	0
TOTALS	683	162	683	162	0	0	0	0
SUM BY RACE	845		845		0		0	

Table 11-A-17
ALL PERSONS DISCHARGED FROM HOSPITALS ALIVE IN U.S., 1981
OTHER AND UNSPECIFIED RHEUMATIC HEART DISEASES
ICD-9-CM 398.9, 398.90, 398.91, 398.99

AGE	ALL RACES		WHITE		OTHER ONLY		BLACK ONLY	
	MALE	FEMALE	MALE	FEMALE	MALE	FEMALE	MALE	FEMALE
0-4	0	0	0	0	0	0	0	0
5-9	0	0	0	0	0	0	0	0
10-14	279	353	154	353	0	0	125	0
15-19	373	950	287	602	0	0	86	348
20-24	97	1160	97	667	0	319	0	174
25-29	951	2878	665	1472	0	280	286	1126
30-34	543	507	543	507	0	0	0	0
35-39	692	689	533	440	159	172	0	77
40-44	541	2919	385	2343	0	0	156	576
45-49	1466	2253	1466	1989	0	132	0	132
50-54	1378	4990	1378	4243	0	153	0	594
55-59	2250	4839	2084	4140	0	334	166	365
60-64	881	2706	881	2139	0	143	0	424
65-69	1950	2659	1797	2329	0	0	153	330
70-74	1198	5525	1198	5525	0	0	0	0
75 up	997	7332	997	7190	0	142	0	0
Not Stated	0	0	0	0	0	0	0	0
TOTALS	13596	39760	12465	33939	159	1675	972	4146
SUM BY RACE	53356		46404		1834		5118	

Table 11-A-18
ALL PERSONS DISCHARGED FROM HOSPITALS ALIVE IN U.S., 1981
CORONARY ATHEROSCLEROSIS
ICD-9-CM 414.0

	<u>ALL RACES</u>		<u>WHITE</u>		<u>OTHER ONLY</u>		<u>BLACK ONLY</u>	
<u>AGE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>
0-4	2413	1445	2167	1287	0	0	246	158
5-9	685	159	685	159	0	0	0	0
10-14	0	132	0	132	0	0	0	0
15-19	906	115	906	115	0	0	0	0
20-24	144	184	144	184	0	0	0	0
25-29	1076	0	941	0	135	0	0	0
30-34	1907	383	1767	383	0	0	140	0
35-39	4970	526	4448	526	172	0	350	0
40-44	11185	3264	10695	3107	161	0	329	157
45-49	24330	9480	22989	8574	0	0	1341	906
50-54	46210	17912	43669	15557	281	469	2260	1886
55-59	65978	25913	62531	22485	1493	1150	1954	2278
60-64	72088	50242	66765	46706	1457	509	3866	3027
65-69	97657	71656	93881	64829	1324	2079	2452	4748
70-74	98789	96327	92839	89519	1387	2874	4563	3934
75 up	212367	365841	200873	343207	2548	5029	8946	17605
Not Stated	0	0	0	0	0	0	0	0
TOTALS	640705	643579	605300	596770	8958	12110	26447	24699
SUM BY RACE	1284284		1202070		21068		61146	

Table 11-A-19
ALL PERSONS DISCHARGED FROM HOSPITALS ALIVE IN U.S., 1981
ANEURYSM OF HEART
ICD-9-CM 414.1

<u>AGE</u>	<u>ALL RACES</u>		<u>WHITE</u>		<u>OTHER ONLY</u>		<u>BLACK ONLY</u>	
	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>
0-4	0	0	0	0	0	0	0	0
5-9	0	0	0	0	0	0	0	0
10-14	0	0	0	0	0	0	0	0
15-19	0	0	0	0	0	0	0	0
20-24	0	0	0	0	0	0	0	0
25-29	0	0	0	0	0	0	0	0
30-34	0	161	0	161	0	0	0	0
35-39	720	0	720	0	0	0	0	0
40-44	147	143	147	143	0	0	0	0
45-49	1009	143	1009	143	0	0	0	0
50-54	1137	276	1009	276	128	0	0	0
55-59	1200	34	992	34	0	0	208	0
60-64	318	143	318	143	0	0	0	0
65-69	2048	733	2048	733	0	0	0	0
70-74	2432	138	2432	138	0	0	0	0
75 up	813	2127	813	2127	0	0	0	0
Not Stated	0	0	0	0	0	0	0	0
TOTALS	9824	3898	9488	3898	128	0	208	0
SUM BY RACE	13722		13386		128		208	

Table 11-A-20
ALL PERSONS DISCHARGED FROM HOSPITALS ALIVE IN U.S., 1981
OTHER SPECIFIED FORMS OF CHRONIC ISCHEMIC HEART DISEASE
ICD-9-CM 414.8

AGE	ALL RACES		WHITE		OTHER ONLY		BLACK ONLY	
	MALE	FEMALE	MALE	FEMALE	MALE	FEMALE	MALE	FEMALE
0-4	146	0	0	0	0	0	146	0
5-9	0	0	0	0	0	0	0	0
10-14	0	0	0	0	0	0	0	0
15-19	0	124	0	124	0	0	0	0
20-24	0	0	0	0	0	0	0	0
25-29	0	77	0	77	0	0	0	0
30-34	163	215	163	215	0	0	0	0
35-39	211	135	211	135	0	0	0	0
40-44	581	521	506	521	0	0	75	0
45-49	1691	1026	1474	884	0	0	217	142
50-54	1988	605	1810	343	178	0	0	262
55-59	2025	1815	1463	1535	481	0	81	280
60-64	1964	2696	1685	2539	0	0	279	157
65-69	3986	2264	3719	2264	0	0	267	0
70-74	3545	1773	3015	1773	0	0	530	0
75 up	5820	8885	5698	7940	122	264	0	681
Not Stated	0	0	0	0	0	0	0	0
TOTALS	22120	20136	19744	18350	781	264	1595	1522
SUM BY RACE	42256		38094		1045		3117	

Table 11-A-21
ALL PERSONS DISCHARGED FROM HOSPITALS ALIVE IN U.S., 1981
AORTIC VALVE DISORDERS
ICD-9-CM 424.1

<u>AGE</u>	<u>ALL RACES</u>		<u>WHITE</u>		<u>OTHER ONLY</u>		<u>BLACK ONLY</u>	
	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>
0-4	0	169	0	169	0	0	0	0
5-9	0	0	0	0	0	0	0	0
10-14	0	0	0	0	0	0	0	0
15-19	0	0	0	0	0	0	0	0
20-24	314	0	314	0	0	0	0	0
25-29	334	445	334	445	0	0	0	0
30-34	0	0	0	0	0	0	0	0
35-39	0	0	0	0	0	0	0	0
40-44	0	271	0	0	0	271	0	0
45-49	143	0	143	0	0	0	0	0
50-54	1405	1309	1405	1096	0	0	0	213
55-59	2055	265	1592	157	302	108	161	0
60-64	2685	1418	2119	844	221	574	345	0
65-69	5156	3712	4791	2754	100	613	265	345
70-74	3598	5583	3598	5583	0	0	0	0
75 up	15525	22353	14237	21421	958	462	330	470
Not Stated	0	0	0	0	0	0	0	0
TOTALS	31215	35525	28533	32469	1581	2028	1101	1028
SUM BY RACE	66740		61002		3609		2129	

Table 11-A-22
ALL PERSONS DISCHARGED FROM HOSPITALS ALIVE IN U.S., 1981
ENDOMYOCARDIAL FIBROSIS
ICD-9-CM 425.0

	<u>ALL RACES</u>		<u>WHITE</u>		<u>OTHER ONLY</u>		<u>BLACK ONLY</u>	
<u>AGE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>
0-4	0	0	0	0	0	0	0	0
5-9	0	0	0	0	0	0	0	0
10-14	0	0	0	0	0	0	0	0
15-19	0	0	0	0	0	0	0	0
20-24	0	0	0	0	0	0	0	0
25-29	0	0	0	0	0	0	0	0
30-34	0	0	0	0	0	0	0	0
35-39	0	0	0	0	0	0	0	0
40-44	0	0	0	0	0	0	0	0
45-49	0	0	0	0	0	0	0	0
50-54	0	0	0	0	0	0	0	0
55-59	0	0	0	0	0	0	0	0
60-64	0	0	0	0	0	0	0	0
65-69	0	0	0	0	0	0	0	0
70-74	0	0	0	0	0	0	0	0
75 up	0	0	0	0	0	0	0	0
Not Stated	0	0	0	0	0	0	0	0
TOTALS	0	0	0	0	0	0	0	0
SUM BY RACE	0		0		0		0	

Table 11-A-23
ALL PERSONS DISCHARGED FROM HOSPITALS ALIVE IN U.S., 1981
OTHER PRIMARY CARDIOMYOPATHIES
ICD-9-CM 425.4

<u>AGE</u>	<u>ALL RACES</u>		<u>WHITE</u>		<u>OTHER ONLY</u>		<u>BLACK ONLY</u>	
	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>
0-4	825	296	0	0	0	0	825	296
5-9	0	0	0	0	0	0	0	0
10-14	0	184	0	184	0	0	0	0
15-19	0	580	0	580	0	0	0	0
20-24	141	105	0	105	0	0	141	0
25-29	1271	707	790	707	0	0	481	0
30-34	1189	549	917	168	0	0	272	381
35-39	1147	583	766	509	0	0	381	74
40-44	1840	1551	956	1198	182	153	702	200
45-49	2262	760	1640	563	0	0	622	197
50-54	3827	451	3684	128	0	0	143	323
55-59	3749	2538	2867	2276	327	149	555	113
60-64	2749	1616	2569	1007	0	165	180	444
65-69	4025	2671	3162	2462	0	0	863	209
70-74	3503	3623	2495	2259	233	936	775	428
75 up	4006	3105	3286	2372	0	0	720	733
Not Stated	0	0	0	0	0	0	0	0
TOTALS	30534	19319	23132	14518	742	1403	6660	3398
SUM BY RACE	49853		37650		2145		10058	

Table 11-A-24
ALL PERSONS DISCHARGED FROM HOSPITALS ALIVE IN U.S., 1981
CONGESTIVE HEART FAILURE
ICD-9-CM 428.0

<u>AGE</u>	<u>ALL RACES</u>		<u>WHITE</u>		<u>OTHER ONLY</u>		<u>BLACK ONLY</u>	
	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>
0-4	4589	2208	3352	1996	258	0	979	212
5-9	506	386	171	386	151	0	184	0
10-14	433	486	433	0	0	486	0	0
15-19	192	436	192	172	0	264	0	0
20-24	346	631	346	631	0	0	0	0
25-29	278	1093	161	371	0	0	117	722
30-34	968	1259	777	512	0	0	191	747
35-39	1634	2208	778	850	231	0	625	1358
40-44	1502	1928	886	1405	0	0	616	523
45-49	7177	6135	4810	3622	822	576	1545	1937
50-54	12356	10112	10739	8748	0	35	1617	1329
55-59	20584	14186	16150	11456	965	560	3469	2170
60-64	29474	23990	25297	19535	733	0	3444	4455
65-69	47969	41226	41716	35693	1335	1044	4918	4489
70-74	61786	57632	56841	49456	758	1894	4187	6282
75 up	142960	249980	127270	228704	1577	3482	14113	17794
Not Stated	0	0	0	0	0	0	0	0
TOTALS	332754	413896	289919	363537	6830	8341	36005	42018
SUM BY RACE	746650		653456		15171		78023	

Table 11-A-25
ALL PERSONS DISCHARGED FROM HOSPITALS ALIVE IN U.S., 1981
LEFT HEART FAILURE
ICD-9-CM 428.1

<u>AGE</u>	<u>ALL RACES</u>		<u>WHITE</u>		<u>OTHER ONLY</u>		<u>BLACK ONLY</u>	
	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>
0-4	168	0	168	0	0	0	0	0
5-9	0	0	0	0	0	0	0	0
10-14	0	0	0	0	0	0	0	0
15-19	0	0	0	0	0	0	0	0
20-24	0	0	0	0	0	0	0	0
25-29	0	423	0	0	0	0	0	423
30-34	0	0	0	0	0	0	0	0
35-39	0	0	0	0	0	0	0	0
40-44	293	0	293	0	0	0	0	0
45-49	0	252	0	252	0	0	0	0
50-54	338	0	129	0	0	0	209	0
55-59	1070	473	1070	473	0	0	0	0
60-64	483	157	483	122	0	0	0	35
65-69	1295	178	1295	178	0	0	0	0
70-74	1568	726	1484	726	0	0	84	0
75 up	1203	2828	1203	2679	0	149	0	0
Not Stated	0	0	0	0	0	0	0	0
TOTALS	6418	5037	6125	4430	0	149	293	458
SUM BY RACE	11455		10555		149		751	

Table 11-A-26
ALL PERSONS DISCHARGED FROM HOSPITALS ALIVE IN U.S., 1981
HEART FAILURE, UNSPECIFIED
ICD-9-CM 428.9

	<u>ALL RACES</u>		<u>WHITE</u>		<u>OTHER ONLY</u>		<u>BLACK ONLY</u>	
<u>AGE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>
0-4	146	121	146	0	0	0	0	121
5-9	105	162	0	162	0	0	105	0
10-14	0	0	0	0	0	0	0	0
15-19	0	0	0	0	0	0	0	0
20-24	0	0	0	0	0	0	0	0
25-29	283	0	139	0	0	0	144	0
30-34	199	132	199	132	0	0	0	0
35-39	0	95	0	95	0	0	0	0
40-44	0	145	0	0	0	0	0	145
45-49	0	0	0	0	0	0	0	0
50-54	152	547	0	365	0	0	152	182
55-59	1133	1551	1014	1258	0	0	119	293
60-64	1956	768	1617	786	0	0	339	0
65-69	3832	1686	3666	1515	0	0	166	171
70-74	3428	3288	2977	2974	0	0	451	314
75 up	7030	12737	6841	11969	189	0	0	768
Not Stated	0	0	0	0	0	0	0	0
TOTALS	18264	21250	16599	19256	189	0	1476	1994
SUM BY RACE	39514		35855		189		3470	

Table 11-A-27
ALL PERSONS DISCHARGED FROM HOSPITALS ALIVE IN U.S., 1981
MYOCARDITIS, UNSPECIFIED
ICD-9-CM 429.0

<u>AGE</u>	<u>ALL RACES</u>		<u>WHITE</u>		<u>OTHER ONLY</u>		<u>BLACK ONLY</u>	
	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>
0-4	324	396	136	0	0	0	188	396
5-9	0	0	0	0	0	0	0	0
10-14	0	0	0	0	0	0	0	0
15-19	168	0	168	0	0	0	0	0
20-24	0	255	0	0	0	0	0	255
25-29	365	0	154	0	0	0	211	0
30-34	207	0	207	0	0	0	0	0
35-39	194	0	194	0	0	0	0	0
40-44	0	0	0	0	0	0	0	0
45-49	0	0	0	0	0	0	0	0
50-54	397	1367	397	885	0	0	0	482
55-59	215	967	215	839	0	0	0	128
60-64	406	0	406	0	0	0	0	0
65-69	1012	431	1012	431	0	0	0	0
70-74	174	924	174	924	0	0	0	0
75 up	959	2004	959	2004	0	0	0	0
Not Stated	0	0	0	0	0	0	0	0
TOTALS	4421	6314	4022	5083	0	0	399	1231
SUM BY RACE	10735		9105		0		1630	

Table 11-A-28
ALL PERSONS DISCHARGED FROM HOSPITALS ALIVE IN U.S., 1981
MYOCARDIAL DEGENERATION
ICD-9-CM 429.1

AGE	ALL RACES		WHITE		OTHER ONLY		BLACK ONLY	
	MALE	FEMALE	MALE	FEMALE	MALE	FEMALE	MALE	FEMALE
0-4	0	0	0	0	0	0	0	0
5-9	0	0	0	0	0	0	0	0
10-14	0	0	0	0	0	0	0	0
15-19	0	0	0	0	0	0	0	0
20-24	0	0	0	0	0	0	0	0
25-29	0	0	0	0	0	0	0	0
30-34	0	75	0	75	0	0	0	0
35-39	0	0	0	0	0	0	0	0
40-44	0	0	0	0	0	0	0	0
45-49	186	0	186	0	0	0	0	0
50-54	142	261	142	261	0	0	0	0
55-59	325	0	325	0	0	0	0	0
60-64	161	178	161	178	0	0	0	0
65-69	158	0	158	0	0	0	0	0
70-74	156	507	156	323	0	0	0	184
75 up	1263	1185	1263	1185	0	0	0	0
Not Stated	0	0	0	0	0	0	0	0
TOTALS	2391	2206	2391	2022	0	0	0	184
SUM BY RACE	4597		4413		0		184	

Table 11-A-29
ALL PERSONS DISCHARGED FROM HOSPITALS ALIVE IN U.S., 1981
CARDIOMEGALY
ICD-9-CM 429.3

AGE	ALL RACES		WHITE		OTHER ONLY		BLACK ONLY	
	MALE	FEMALE	MALE	FEMALE	MALE	FEMALE	MALE	FEMALE
0-4	259	0	144	0	0	0	155	0
5-9	139	0	0	0	139	0	0	0
10-14	157	0	0	0	157	0	0	0
15-19	212	645	116	199	0	0	96	446
20-24	455	298	455	0	0	298	0	0
25-29	544	805	183	450	327	0	34	355
30-34	336	867	197	510	0	0	139	357
35-39	1269	318	1037	175	0	143	232	0
40-44	890	667	269	343	0	0	621	324
45-49	2347	916	1614	815	287	0	446	101
50-54	1300	3218	1006	1784	0	196	294	1238
55-59	3234	2888	2492	1453	0	538	742	897
60-64	2397	2055	2138	1566	0	0	259	489
65-69	4011	3037	3102	2850	167	138	742	49
70-74	5072	7060	5072	6238	0	0	0	822
75 up	7816	18456	7229	16217	0	0	587	2239
Not Stated	0	0	0	0	0	0	0	0
TOTALS	30438	41230	25054	32600	1077	1313	4307	7317
SUM BY RACE	71668		57654		2390		11624	

Table 11-A-30
ALL PERSONS DISCHARGED FROM HOSPITALS ALIVE IN U.S., 1981
SUMMARY ALL AGES AND ALL CONDITIONS
SELECTED CONDITIONS FOR WHICH HEART TRANSPLANTATION IS INDICATED

<u>AGE</u>	<u>ALL RACES</u>		<u>WHITE</u>		<u>OTHER ONLY</u>		<u>BLACK ONLY</u>	
	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>
0-4	8870	4714	6113	3531	258	0	2499	1183
5-9	1578	707	999	707	290	0	289	0
10-14	869	1155	587	669	157	486	125	0
15-19	1851	3775	1669	2521	0	264	182	990
20-24	1497	3799	1356	2376	0	764	141	659
25-29	6112	7004	4194	3773	645	280	1273	2951
30-34	5942	4635	5033	2934	0	138	909	1563
35-39	11423	5589	9273	3561	562	519	1588	1509
40-44	18542	12356	15550	9972	343	424	2649	1960
45-49	41875	23432	36595	18575	1109	858	4399	3771
50-54	71811	45819	66331	37840	587	1277	4893	6702
55-59	104370	59034	93347	49162	3568	3148	7455	6724
60-64	115871	88617	104748	78163	2411	1391	8712	9063
65-69	175128	135151	162376	120936	2926	3874	9826	10341
70-74	187155	184839	174187	167021	2378	5704	10590	12114
75 up	402377	703801	372141	653635	5540	9662	24696	40504
Not Stated	0	0	0	0	0	0	0	0
TOTALS	1155271	1284427	1054499	1155376	20774	28789	80226	100034
SUM BY RACE	2439698		2209875		49563		180260	

Table 11-A-31
ALL PERSONS DISCHARGED FROM HOSPITALS ALIVE IN U.S., 1981
AGES 5-54 ONLY
SELECTED CONDITIONS FOR WHICH HEART TRANSPLANTATION IS INDICATED

<u>AGE</u>	<u>ALL RACES</u>		<u>WHITE</u>		<u>OTHER ONLY</u>		<u>BLACK ONLY</u>	
	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>
0-4								
5-9	1578	707	999	707	290	0	289	0
10-14	869	1155	587	669	157	486	125	0
15-19	1851	3775	1669	2521	0	264	182	990
20-24	1497	3799	1356	2376	0	764	141	659
25-29	6112	7004	4194	3773	645	280	1273	2951
30-34	5942	4635	5033	2934	0	138	909	1563
35-39	11423	5589	9273	3561	562	519	1588	1509
40-44	18542	12356	15550	9972	343	424	2649	1960
45-49	41875	23432	36595	18575	1109	858	4399	3771
50-54	71811	45819	66331	37840	587	1277	4893	6702
55-59								
60-64								
65-69								
70-74								
75 up								
Not Stated	0	0	0	0	0	0	0	0
TOTALS	161500	108271	141587	82928	3693	5010	16448	20105
SUM BY RACE	269771		224515		8703		36553	

Table 11-A-32
ALL PERSONS DISCHARGED FROM HOSPITALS ALIVE IN U.S., 1981
AGES 10-54 ONLY
SELECTED CONDITIONS FOR WHICH HEART TRANSPLANTATION IS INDICATED

<u>AGE</u>	<u>ALL RACES</u>		<u>WHITE</u>		<u>OTHER ONLY</u>		<u>BLACK ONLY</u>	
	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>
0-4								
5-9								
10-14	869	1155	587	669	157	486	125	0
15-19	1851	3775	1669	2521	0	264	182	990
20-24	1497	3799	1356	2376	0	764	141	659
25-29	6112	7004	4194	3773	645	280	1273	2951
30-34	5942	4635	5033	2934	0	138	909	1563
35-39	11423	5589	9273	3561	562	519	1588	1509
40-44	18542	12356	15550	9972	343	424	2649	1960
45-49	41875	23432	36595	18575	1109	858	4399	3771
50-54	71811	45819	66331	37840	587	1277	4893	6702
55-59								
60-64								
65-69								
70-74								
75 up								
Not Stated	0	0	0	0	0	0	0	0
TOTALS	159922	107564	140588	82221	3403	5010	16159	20105
SUM BY RACE	267486		222809		8413		36264	

Table 11-A-33
ALL PERSONS DISCHARGED FROM HOSPITALS ALIVE IN U.S., 1981
AGES 5-49 ONLY
SELECTED CONDITIONS FOR WHICH HEART TRANSPLANTATION IS INDICATED

<u>AGE</u>	<u>ALL RACES</u>		<u>WHITE</u>		<u>OTHER ONLY</u>		<u>BLACK ONLY</u>	
	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>
0-4								
5-9	1578	707	999	707	290	0	289	0
10-14	869	1155	587	669	157	486	125	0
15-19	1851	3775	1669	2521	0	264	182	990
20-24	1497	3799	1356	2376	0	764	141	659
25-29	6112	7004	4194	3773	645	280	1273	2951
30-34	5942	4635	5033	2934	0	138	909	1563
35-39	11423	5589	9273	3561	562	519	1588	1509
40-44	18542	12356	15550	9972	343	424	2649	1960
45-49	41875	23432	36595	18575	1109	858	4399	3771
50-54								
55-59								
60-64								
65-69								
70-74								
75 up								
Not Stated	0	0	0	0	0	0	0	0
TOTALS	89689	62452	75256	45088	3106	3733	11555	13403
SUM BY RACE	152141		120344		6839		24958	

Table 11-A-34
ALL PERSONS DISCHARGED FROM HOSPITALS ALIVE IN U.S., 1981
AGES 10-49 ONLY
SELECTED CONDITIONS FOR WHICH HEART TRANSPLANTATION IS INDICATED

<u>AGE</u>	<u>ALL RACES</u>		<u>WHITE</u>		<u>OTHER ONLY</u>		<u>BLACK ONLY</u>	
	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>
0-4								
5-9								
10-14	869	1155	587	669	157	486	125	0
15-19	1851	3775	1669	2521	0	264	182	990
20-24	1497	3799	1356	2376	0	764	141	659
25-29	6112	7004	4194	3773	645	280	1273	2951
30-34	5942	4635	5033	2934	0	138	909	1563
35-39	11423	5589	9273	3561	562	519	1588	1509
40-44	18542	12356	15550	9972	343	424	2649	1960
45-49	41875	23432	36595	18575	1109	858	4399	3771
50-54								
55-59								
60-64								
65-69								
70-74								
75 up								
Not Stated	0	0	0	0	0	0	0	0
TOTALS	88111	61745	74257	44381	2816	3733	11266	13403
SUM BY RACE	149856		118638		6549		24669	

APPENDIX 11-B

DETAILED MORBIDITY TABLES FOR 1980

Table 11-B-1
ALL PERSONS DISCHARGED FROM HOSPITALS ALIVE IN U.S., 1980
MALIGNANT NEOPLASM OF THE HEART
ICD-9-CM 164.1

	<u>ALL RACES</u>		<u>WHITE</u>		<u>ALL OTHER</u>		<u>NOT STATED</u>	
<u>AGE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>
0-4	0	0	0	0	0	0	0	0
5-9	0	0	0	0	0	0	0	0
10-14	0	0	0	0	0	0	0	0
15-19	0	0	0	0	0	0	0	0
20-24	0	0	0	0	0	0	0	0
25-29	0	0	0	0	0	0	0	0
30-34	0	0	0	0	0	0	0	0
35-39	0	0	0	0	0	0	0	0
40-44	0	0	0	0	0	0	0	0
45-49	0	0	0	0	0	0	0	0
50-54	313	0	313	0	0	0	0	0
55-59	0	150	0	150	0	0	0	0
60-64	0	0	0	0	0	0	0	0
65-69	174	0	174	0	0	0	0	0
70-74	0	150	0	150	0	0	0	0
75 up	0	152	0	152	0	0	0	0
Not Stated	0	0	0	0	0	0	0	0
TOTALS	487	452	487	452	0	0	0	0
SUM BY RACE	939		939		0		0	

Table 11-B-2
ALL PERSONS DISCHARGED FROM HOSPITALS ALIVE IN U.S., 1980
MITRAL STENOSIS
ICD-9-CM 394.0

	<u>ALL RACES</u>		<u>WHITE</u>		<u>ALL OTHER</u>		<u>NOT STATED</u>	
<u>AGE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>
0-4	0	0	0	0	0	0	0	0
5-9	0	0	0	0	0	0	0	0
10-14	0	71	0	0	0	71	0	0
15-19	0	0	0	0	0	0	0	0
20-24	0	767	0	767	0	0	0	0
25-29	0	804	0	804	0	0	0	0
30-34	797	320	797	151	0	169	0	0
35-39	86	770	86	413	0	239	0	118
40-44	0	1054	0	834	0	0	0	220
45-49	0	928	0	928	0	0	0	0
50-54	264	2162	264	2162	0	0	0	0
55-59	319	1162	319	977	0	0	0	185
60-64	126	1559	0	980	0	0	126	579
65-69	416	998	148	998	0	0	268	0
70-74	219	701	219	701	0	0	0	0
75 up	123	786	123	482	0	0	0	304
Not Stated	0	0	0	0	0	0	0	0
TOTALS	2350	12082	1956	10197	0	479	394	1406
SUM BY RACE	14432		12153		479		1800	

Table 11-B-3
ALL PERSONS DISCHARGED FROM HOSPITALS ALIVE IN U.S., 1980
RHEUMATIC MITRAL INSUFFICIENCY
ICD-9-CM 394.1

AGE	ALL RACES		WHITE		ALL OTHER		NOT STATED	
	MALE	FEMALE	MALE	FEMALE	MALE	FEMALE	MALE	FEMALE
0-4	0	0	0	0	0	0	0	0
5-9	0	0	0	0	0	0	0	0
10-14	0	117	0	0	0	117	0	0
15-19	0	0	0	0	0	0	0	0
20-24	0	228	0	0	0	0	0	228
25-29	0	0	0	0	0	0	0	0
30-34	0	0	0	0	0	0	0	0
35-39	0	0	0	0	0	0	0	0
40-44	0	0	0	0	0	0	0	0
45-49	0	0	0	0	0	0	0	0
50-54	0	138	0	138	0	0	0	0
55-59	0	147	0	147	0	0	0	0
60-64	0	0	0	0	0	0	0	0
65-69	0	0	0	0	0	0	0	0
70-74	0	0	0	0	0	0	0	0
75 up	139	351	139	351	0	0	0	0
Not Stated	0	0	0	0	0	0	0	0
TOTALS	139	981	139	636	0	117	0	228
SUM BY RACE	1120		775		117		228	

Table 11-B-4
ALL PERSONS DISCHARGED FROM HOSPITALS ALIVE IN U.S., 1980
MITRAL STENOSIS WITH INSUFFICIENCY
ICD-9-CM 394.2

<u>AGE</u>	<u>ALL RACES</u>		<u>WHITE</u>		<u>ALL OTHER</u>		<u>NOT STATED</u>	
	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>
0-4	0	0	0	0	0	0	0	0
5-9	0	0	0	0	0	0	0	0
10-14	0	0	0	0	0	0	0	0
15-19	0	0	0	0	0	0	0	0
20-24	0	0	0	0	0	0	0	0
25-29	0	0	0	0	0	0	0	0
30-34	0	0	0	0	0	0	0	0
35-39	0	0	0	0	0	0	0	0
40-44	0	0	0	0	0	0	0	0
45-49	0	307	0	307	0	0	0	0
50-54	0	791	0	709	0	82	0	0
55-59	0	176	0	0	0	0	0	176
60-64	84	309	0	200	0	0	84	109
65-69	0	135	0	135	0	0	0	0
70-74	0	0	0	0	0	0	0	0
75 up	0	362	0	142	0	0	0	220
Not Stated	0	0	0	0	0	0	0	0
TOTALS	84	2080	0	1493	0	82	84	505
SUM BY RACE	2164		1493		82		589	

Table 11-B-5
ALL PERSONS DISCHARGED FROM HOSPITALS ALIVE IN U.S., 1980
OTHER AND UNSPECIFIED MITRAL VALVE DISEASES
ICD-9-CM 394.9

<u>AGE</u>	<u>ALL RACES</u>		<u>WHITE</u>		<u>ALL OTHER</u>		<u>NOT STATED</u>	
	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>
0-4	0	0	0	0	0	0	0	0
5-9	0	0	0	0	0	0	0	0
10-14	0	0	0	0	0	0	0	0
15-19	0	318	0	318	0	0	0	0
20-24	0	486	0	486	0	0	0	0
25-29	244	529	128	379	0	0	116	150
30-34	329	529	329	181	0	348	0	0
35-39	707	1756	707	1424	0	332	0	0
40-44	0	0	0	0	0	0	0	0
45-49	117	1149	0	1021	117	0	0	128
50-54	131	751	131	580	0	171	0	0
55-59	1315	861	572	861	439	0	304	0
60-64	830	2715	830	1926	0	352	0	437
65-69	743	715	571	715	0	0	172	0
70-74	466	993	466	993	0	0	0	0
75 up	1361	2029	1170	1531	115	0	76	498
Not Stated	0	0	0	0	0	0	0	0
TOTALS	6243	12831	4904	10415	671	1203	668	1213
SUM BY RACE	19074		15319		1874		1881	

Table 11-B-6
ALL PERSONS DISCHARGED FROM HOSPITALS ALIVE IN U.S., 1980
RHEUMATIC AORTIC STENOSIS
ICD-9-CM 395.0

<u>AGE</u>	<u>ALL RACES</u>		<u>WHITE</u>		<u>ALL OTHER</u>		<u>NOT STATED</u>	
	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>
0-4	0	0	0	0	0	0	0	0
5-9	0	0	0	0	0	0	0	0
10-14	0	0	0	0	0	0	0	0
15-19	0	0	0	0	0	0	0	0
20-24	0	0	0	0	0	0	0	0
25-29	0	0	0	0	0	0	0	0
30-34	0	0	0	0	0	0	0	0
35-39	0	0	0	0	0	0	0	0
40-44	0	0	0	0	0	0	0	0
45-49	0	0	0	0	0	0	0	0
50-54	0	0	0	0	0	0	0	0
55-59	0	0	0	0	0	0	0	0
60-64	0	0	0	0	0	0	0	0
65-69	0	0	0	0	0	0	0	0
70-74	0	0	0	0	0	0	0	0
75 up	0	0	0	0	0	0	0	0
Not Stated	0	0	0	0	0	0	0	0
TOTALS	0	0	0	0	0	0	0	0
SUM BY RACE	0		0		0		0	

Table 11-B-7
ALL PERSONS DISCHARGED FROM HOSPITALS ALIVE IN U.S., 1980
RHEUMATIC AORTIC INSUFFICIENCY
ICD-9-CM 395.1

AGE	ALL RACES		WHITE		ALL OTHER		NOT STATED	
	MALE	FEMALE	MALE	FEMALE	MALE	FEMALE	MALE	FEMALE
0-4	0	0	0	0	0	0	0	0
5-9	0	0	0	0	0	0	0	0
10-14	0	0	0	0	0	0	0	0
15-19	0	0	0	0	0	0	0	0
20-24	0	0	0	0	0	0	0	0
25-29	0	423	0	423	0	0	0	0
30-34	0	0	0	0	0	0	0	0
35-39	0	0	0	0	0	0	0	0
40-44	171	0	171	0	0	0	0	0
45-49	0	0	0	0	0	0	0	0
50-54	0	0	0	0	0	0	0	0
55-59	0	0	0	0	0	0	0	0
60-64	0	0	0	0	0	0	0	0
65-69	0	0	0	0	0	0	0	0
70-74	0	0	0	0	0	0	0	0
75 up	0	254	0	254	0	0	0	0
Not Stated	0	0	0	0	0	0	0	0
TOTALS	171	677	161	677	0	0	0	0
SUM BY RACE	848		848		0		0	

Table 11-B-8
ALL PERSONS DISCHARGED FROM HOSPITALS ALIVE IN U.S., 1980
RHEUMATIC AORTIC STENOSIS WITH INSUFFICIENCY
ICD-9-CM 395.2

<u>AGE</u>	<u>ALL RACES</u>		<u>WHITE</u>		<u>ALL OTHER</u>		<u>NOT STATED</u>	
	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>
0-4	0	0	0	0	0	0	0	0
5-9	0	0	0	0	0	0	0	0
10-14	0	0	0	0	0	0	0	0
15-19	0	0	0	0	0	0	0	0
20-24	0	0	0	0	0	0	0	0
25-29	0	0	0	0	0	0	0	0
30-34	0	0	0	0	0	0	0	0
35-39	0	0	0	0	0	0	0	0
40-44	0	0	0	0	0	0	0	0
45-49	0	0	0	0	0	0	0	0
50-54	0	0	0	0	0	0	0	0
55-59	0	0	0	0	0	0	0	0
60-64	0	0	0	0	0	0	0	0
65-69	0	0	0	0	0	0	0	0
70-74	0	0	0	0	0	0	0	0
75 up	0	167	0	167	0	0	0	0
Not Stated	0	0	0	0	0	0	0	0
TOTALS	0	167	0	167	0	0	0	0
SUM BY RACE	167		167		0		0	

Table 11-B-9
ALL PERSONS DISCHARGED FROM HOSPITALS ALIVE IN U.S., 1980
OTHER AND UNSPECIFIED RHEUMATIC AORTIC DISEASES
ICD-9-CM 395.9

AGE	ALL RACES		WHITE		ALL OTHER		NOT STATED	
	MALE	FEMALE	MALE	FEMALE	MALE	FEMALE	MALE	FEMALE
0-4	0	0	0	0	0	0	0	0
5-9	0	0	0	0	0	0	0	0
10-14	0	0	0	0	0	0	0	0
15-19	0	0	0	0	0	0	0	0
20-24	0	0	0	0	0	0	0	0
25-29	436	0	436	0	0	0	0	0
30-34	0	0	0	0	0	0	0	0
35-39	0	0	0	0	0	0	0	0
40-44	0	0	0	0	0	0	0	0
45-49	0	0	0	0	0	0	0	0
50-54	0	0	0	0	0	0	0	0
55-59	0	0	0	0	0	0	0	0
60-64	0	0	0	0	0	0	0	0
65-69	0	0	0	0	0	0	0	0
70-74	0	119	0	119	0	0	0	0
75 up	0	0	0	0	0	0	0	0
Not Stated	0	0	0	0	0	0	0	0
TOTALS	436	119	436	119	0	0	0	0
SUM BY RACE	555		555		0		0	

Table 11-B-10
ALL PERSONS DISCHARGED FROM HOSPITALS ALIVE IN U.S., 1980
MITRAL VALVE STENOSIS AND AORTIC VALVE STENOSIS
ICD-9-CM 396.0

<u>AGE</u>	<u>ALL RACES</u>		<u>WHITE</u>		<u>ALL OTHER</u>		<u>NOT STATED</u>	
	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>
0-4	0	0	0	0	0	0	0	0
5-9	0	0	0	0	0	0	0	0
10-14	0	0	0	0	0	0	0	0
15-19	0	0	0	0	0	0	0	0
20-24	0	0	0	0	0	0	0	0
25-29	0	0	0	0	0	0	0	0
30-34	0	0	0	0	0	0	0	0
35-39	0	0	0	0	0	0	0	0
40-44	0	0	0	0	0	0	0	0
45-49	0	0	0	0	0	0	0	0
50-54	0	134	0	0	0	134	0	0
55-59	0	0	0	0	0	0	0	0
60-64	0	158	0	0	0	158	0	0
65-69	0	328	0	0	0	328	0	0
70-74	0	331	0	0	0	331	0	0
75 up	276	0	0	0	276	0	0	0
Not Stated	0	0	0	0	0	0	0	0
TOTALS	276	951	0	0	276	951	0	0
SUM BY RACE	1227		0		1227		0	

Table 11-B-11
ALL PERSONS DISCHARGED FROM HOSPITALS ALIVE IN U.S., 1980
MITRAL VALVE STENOSIS AND AORTIC VALVE INSUFFICIENCY
ICD-9-CM 396.1

AGE	ALL RACES		WHITE		ALL OTHER		NOT STATED	
	MALE	FEMALE	MALE	FEMALE	MALE	FEMALE	MALE	FEMALE
0-4	0	0	0	0	0	0	0	0
5-9	0	0	0	0	0	0	0	0
10-14	0	0	0	0	0	0	0	0
15-19	0	0	0	0	0	0	0	0
20-24	0	0	0	0	0	0	0	0
25-29	115	0	0	0	115	0	0	0
30-34	194	1189	194	1189	0	0	0	0
35-39	0	0	0	0	0	0	0	0
40-44	0	0	0	0	0	0	0	0
45-49	0	426	0	426	0	0	0	0
50-54	0	123	0	123	0	0	0	0
55-59	0	0	0	0	0	0	0	0
60-64	0	185	0	185	0	0	0	0
65-69	0	0	0	0	0	0	0	0
70-74	221	0	221	0	0	0	0	0
75 up	0	397	0	397	0	0	0	0
Not Stated	0	0	0	0	0	0	0	0
TOTALS	530	2320	415	2320	115	0	0	0
SUM BY RACE	2850		2735		115		0	

Table 11-B-12
ALL PERSONS DISCHARGED FROM HOSPITALS ALIVE IN U.S., 1980
MITRAL VALVE INSUFFICIENCY AND AORTIC VALVE STENOSIS
ICD-9-CM 396.2

<u>AGE</u>	<u>ALL RACES</u>		<u>WHITE</u>		<u>ALL OTHER</u>		<u>NOT STATED</u>	
	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>
0-4	0	0	0	0	0	0	0	0
5-9	0	0	0	0	0	0	0	0
10-14	0	0	0	0	0	0	0	0
15-19	0	0	0	0	0	0	0	0
20-24	0	0	0	0	0	0	0	0
25-29	0	0	0	0	0	0	0	0
30-34	0	0	0	0	0	0	0	0
35-39	0	0	0	0	0	0	0	0
40-44	0	0	0	0	0	0	0	0
45-49	198	0	198	0	0	0	0	0
50-54	0	310	0	310	0	0	0	0
55-59	0	129	0	129	0	0	0	0
60-64	0	143	0	143	0	0	0	0
65-69	398	277	398	147	0	0	0	130
70-74	142	410	142	255	0	155	0	0
75 up	589	974	589	547	0	0	0	427
Not Stated	0	0	0	0	0	0	0	0
TOTALS	1327	2243	1327	1531	0	155	0	557
SUM BY RACE	3570		2858		155		557	

Table 11-B-13
ALL PERSONS DISCHARGED FROM HOSPITALS ALIVE IN U.S., 1980
MITRAL VALVE INSUFFICIENCY AND AORTIC VALVE INSUFFICIENCY
ICD-9-CM 396.3

AGE	ALL RACES		WHITE		ALL OTHER		NOT STATED	
	MALE	FEMALE	MALE	FEMALE	MALE	FEMALE	MALE	FEMALE
0-4	0	0	0	0	0	0	0	0
5-9	0	0	0	0	0	0	0	0
10-14	0	0	0	0	0	0	0	0
15-19	0	0	0	0	0	0	0	0
20-24	0	0	0	0	0	0	0	0
25-29	138	0	0	0	138	0	0	0
30-34	0	0	0	0	0	0	0	0
35-39	0	0	0	0	0	0	0	0
40-44	0	0	0	0	0	0	0	0
45-49	0	121	0	121	0	0	0	0
50-54	168	115	0	115	168	0	0	0
55-59	0	0	0	0	0	0	0	0
60-64	198	308	198	308	0	0	0	0
65-69	0	127	0	127	0	0	0	0
70-74	422	208	422	208	0	0	0	0
75 up	254	781	254	293	0	0	0	488
Not Stated	0	0	0	0	0	0	0	0
TOTALS	1180	1660	874	1172	306	0	0	488
SUM BY RACE	2840		2046		306		488	

Table 11-B-14
ALL PERSONS DISCHARGED FROM HOSPITALS ALIVE IN U.S., 1980
MULTIPLE INVOLVEMENT OF MITRAL AND AORTIC VALVES
ICD-9-CM 396.8

<u>AGE</u>	<u>ALL RACES</u>		<u>WHITE</u>		<u>ALL OTHER</u>		<u>NOT STATED</u>	
	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>
0-4	0	0	0	0	0	0	0	0
5-9	0	0	0	0	0	0	0	0
10-14	0	0	0	0	0	0	0	0
15-19	0	0	0	0	0	0	0	0
20-24	0	0	0	0	0	0	0	0
25-29	368	0	368	0	0	0	0	0
30-34	0	0	0	0	0	0	0	0
35-39	0	0	0	0	0	0	0	0
40-44	0	0	0	0	0	0	0	0
45-49	0	0	0	0	0	0	0	0
50-54	0	0	0	0	0	0	0	0
55-59	0	238	0	180	0	58	0	0
60-64	0	109	0	109	0	0	0	0
65-69	0	0	0	0	0	0	0	0
70-74	0	0	0	0	0	0	0	0
75 up	0	0	0	0	0	0	0	0
Not Stated	0	0	0	0	0	0	0	0
TOTALS	368	347	368	289	0	58	0	0
SUM BY RACE	715		657		58			

Table 11-B-15
ALL PERSONS DISCHARGED FROM HOSPITALS ALIVE IN U.S., 1980
MULTIPLE AND AORTIC VALVE DISEASES, UNSPECIFIED
ICD-9-CM 396.9

<u>AGE</u>	<u>ALL RACES</u>		<u>WHITE</u>		<u>ALL OTHER</u>		<u>NOT STATED</u>	
	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>
0-4	0	0	0	0	0	0	0	0
5-9	0	0	0	0	0	0	0	0
10-14	0	0	0	0	0	0	0	0
15-19	0	0	0	0	0	0	0	0
20-24	0	0	0	0	0	0	0	0
25-29	44	0	0	0	44	0	0	0
30-34	0	0	0	0	0	0	0	0
35-39	0	0	0	0	0	0	0	
40-44	0	0	0	0	0	0	0	0
45-49	218	158	0	158	218	0	0	0
50-54	0	104	0	104	0	0	0	0
55-59	0	0	0	0	0	0	0	0
60-64	0	298	0	120	0	0	0	178
65-69	0	135	0	135	0	0	0	0
70-74	0	0	0	0	0	0	0	0
75 up	0	450	0	164	0	0	0	286
Not Stated	0	0	0	0	0	0	0	0
TOTALS	262	1145	0	681	262	0	0	464
SUM BY RACE	1407		681		262		464	

Table 11-B-16
ALL PERSONS DISCHARGED FROM HOSPITALS ALIVE IN U.S., 1980
RHEUMATIC MYOCARDITIS
ICD-9-CM 398.0

<u>AGE</u>	<u>ALL RACES</u>		<u>WHITE</u>		<u>ALL OTHER</u>		<u>NOT STATED</u>	
	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>
0-4	0	0	0	0	0	0	0	0
5-9	0	0	0	0	0	0	0	0
10-14	0	0	0	0	0	0	0	0
15-19	0	0	0	0	0	0	0	0
20-24	0	0	0	0	0	0	0	0
25-29	0	0	0	0	0	0	0	0
30-34	0	0	0	0	0	0	0	0
35-39	0	0	0	0	0	0	0	0
40-44	0	0	0	0	0	0	0	0
45-49	0	0	0	0	0	0	0	0
50-54	0	0	0	0	0	0	0	0
55-59	0	0	0	0	0	0	0	0
60-64	0	0	0	0	0	0	0	0
65-69	0	0	0	0	0	0	0	0
70-74	0	0	0	0	0	0	0	0
75 up	0	0	0	0	0	0	0	0
Not Stated	0	0	0	0	0	0	0	0
TOTALS	0	0	0	0	0	0	0	0
SUM BY RACE	0		0		0		0	

Table 11-B-17
ALL PERSONS DISCHARGED FROM HOSPITALS ALIVE IN U.S., 1980
OTHER AND UNSPECIFIED RHEUMATIC HEART DISEASES
ICD-9-CM 398.9, 398.90, 398.91, 398.99

AGE	ALL RACES		WHITE		ALL OTHER		NOT STATED	
	MALE	FEMALE	MALE	FEMALE	MALE	FEMALE	MALE	FEMALE
0-4	67	0	0	0	0	0	67	0
5-9	0	0	0	0	0	0	0	0
10-14	331	286	331	286	0	0	0	0
15-19	111	1491	0	888	0	330	111	273
20-24	484	1156	484	558	0	416	0	182
25-29	220	1943	220	1596	0	347	0	0
30-34	731	1631	731	1162	0	178	0	291
35-39	1621	3651	978	2954	0	532	643	165
40-44	1263	2670	1043	2076	0	594	220	0
45-49	1077	2696	889	2178	188	518	0	0
50-54	1014	2591	1014	2376	0	0	0	215
55-59	1634	2230	1035	1706	158	130	441	394
60-64	2285	3627	1627	2406	29	573	629	648
65-69	1153	3368	1075	2819	0	427	78	122
70-74	925	4575	771	3838	0	305	154	432
75 up	836	5026	726	4447	110	128	0	451
Not Stated	0	0	0	0	0	0	0	0
TOTALS	13752	36941	10924	29290	485	4478	2343	3173
SUM BY RACE	50693		40214		4963		5516	

Table 11-B-18
ALL PERSONS DISCHARGED FROM HOSPITALS ALIVE IN U.S., 1980
CORONARY ATHEROSCLEROSIS
ICD-9-CM 414.0

<u>AGE</u>	<u>ALL RACES</u>		<u>WHITE</u>		<u>ALL OTHER</u>		<u>NOT STATED</u>	
	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>
0-4	1062	1616	1062	1068	0	127	0	421
5-9	0	0	0	0	0	0	0	0
10-14	0	130	0	0	0	0	0	130
15-19	0	172	0	172	0	0	0	0
20-24	108	0	0	0	0	0	108	0
25-29	371	158	171	158	200	0	0	0
30-34	1677	0	1270	0	407	0	0	0
35-39	7772	880	6787	265	235	301	750	314
40-44	13130	2486	11162	1661	1182	825	786	0
45-49	23353	13086	19475	11256	1517	1008	2361	822
50-54	44697	20593	37714	16873	1594	2413	5389	1307
55-59	70388	29294	59610	22596	2696	3188	8082	3510
60-64	77175	46617	62551	37389	5029	2650	9595	6578
65-69	79421	61084	65974	48611	4550	5324	8897	7149
70-74	98476	92919	83264	78806	6276	5494	8936	8619
75 up	192821	298279	161192	253211	12648	17238	18981	27830
Not Stated	0	0	0	0	0	0	0	0
TOTALS	610451	567314	510232	472066	36334	38568	63885	56680
SUM BY RACE	1177765		982298		74902		120565	

Table 11-B-19
ALL PERSONS DISCHARGED FROM HOSPITALS ALIVE IN U.S., 1980
ANEURYSM OF HEART
ICD-9-CM 414.1

AGE	ALL RACES		WHITE		ALL OTHER		NOT STATED	
	MALE	FEMALE	MALE	FEMALE	MALE	FEMALE	MALE	FEMALE
0-4	0	0	0	0	0	0	0	0
5-9	0	0	0	0	0	0	0	0
10-14	0	0	0	0	0	0	0	0
15-19	0	0	0	0	0	0	0	0
20-24	0	0	0	0	0	0	0	0
25-29	0	0	0	0	0	0	0	0
30-34	0	0	0	0	0	0	0	0
35-39	1168	172	1168	172	0	0	0	0
40-44	531	0	0	0	364	0	167	0
45-49	645	0	535	0	110	0	0	0
50-54	1408	379	1408	379	0	0	0	0
55-59	634	397	347	397	287	0	0	0
60-64	1039	462	871	462	0	0	168	0
65-69	1122	522	667	332	156	190	299	0
70-74	569	571	569	571	0	0	0	0
75 up	1050	880	1050	597	0	0	0	283
Not Stated	0	0	0	0	0	0	0	0
TOTALS	8166	3383	6615	2910	917	190	634	283
SUM BY RACE	11549		9525		1107		917	

Table 11-B-20
ALL PERSONS DISCHARGED FROM HOSPITALS ALIVE IN U.S., 1980
OTHER SPECIFIED FORMS OF CHRONIC ISCHEMIC HEART DISEASE
ICD-9-CM 414.8

<u>AGE</u>	<u>ALL RACES</u>		<u>WHITE</u>		<u>ALL OTHER</u>		<u>NOT STATED</u>	
	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>
0-4	138	152	138	152	0	0	0	0
5-9	0	0	0	0	0	0	0	0
10-14	0	0	0	0	0	0	0	0
15-19	0	0	0	0	0	0	0	0
20-24	202	0	202	0	0	0	0	0
25-29	0	0	0	0	0	0	0	0
30-34	918	408	707	408	211	0	0	0
35-39	384	126	384	0	0	0	0	126
40-44	204	457	204	305	0	0	0	152
45-49	1721	946	1402	946	319	0	0	0
50-54	1877	2195	1263	1941	74	254	540	0
55-59	4047	2840	3822	2098	225	421	0	321
60-64	4209	2145	3607	2145	279	0	323	0
65-69	2896	4202	2569	3972	0	0	327	230
70-74	2147	2162	1395	1770	411	0	341	392
75 up	3182	7939	3072	6400	110	1093	0	446
Not Stated	0	0	0	0	0	0	0	0
TOTALS	21925	23572	18765	20137	1629	1768	1531	1667
SUM BY RACE	45497		38902		3397		3198	

Table 11-B-21
ALL PERSONS DISCHARGED FROM HOSPITALS ALIVE IN U.S., 1980
AORTIC VALVE DISORDERS
ICD-9-CM 424.1

AGE	ALL RACES		WHITE		ALL OTHER		NOT STATED	
	MALE	FEMALE	MALE	FEMALE	MALE	FEMALE	MALE	FEMALE
0-4	0	149	0	149	0	0	0	0
5-9	0	0	0	0	0	0	0	0
10-14	0	0	0	0	0	0	0	0
15-19	185	0	185	0	0	0	0	0
20-24	0	0	0	0	0	0	0	0
25-29	122	0	122	0	0	0	0	0
30-34	0	287	0	0	0	0	0	287
35-39	179	0	179	0	0	0	0	0
40-44	220	481	220	265	0	216	0	0
45-49	346	445	155	281	0	164	191	0
50-54	911	639	522	354	222	285	167	0
55-59	2397	1137	1322	457	349	0	726	680
60-64	2941	1625	2319	1064	346	561	276	0
65-69	4407	3059	3264	2640	690	419	453	0
70-74	5369	4936	3114	3540	599	765	1656	631
75 up	0	0	0	0	0	0	0	0
Not Stated	0	0	0	0	0	0	0	0
TOTALS	17077	12758	11402	8750	2206	2410	3469	1598
SUM BY RACE	29835		20152		4616		5067	

Table 11-B-22
ALL PERSONS DISCHARGED FROM HOSPITALS ALIVE IN U.S., 1980
ENDOMYOCARDIAL FIBROSIS
ICD-9-CM 425.0

<u>AGE</u>	<u>ALL RACES</u>		<u>WHITE</u>		<u>ALL OTHER</u>		<u>NOT STATED</u>	
	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>
0-4	0	0	0	0	0	0	0	0
5-9	0	0	0	0	0	0	0	0
10-14	0	0	0	0	0	0	0	0
15-19	0	0	0	0	0	0	0	0
20-24	0	0	0	0	0	0	0	0
25-29	0	0	0	0	0	0	0	0
30-34	0	0	0	0	0	0	0	0
35-39	0	0	0	0	0	0	0	0
40-44	0	0	0	0	0	0	0	0
45-49	0	0	0	0	0	0	0	0
50-54	0	0	0	0	0	0	0	0
55-59	0	0	0	0	0	0	0	0
60-64	0	0	0	0	0	0	0	0
65-69	0	0	0	0	0	0	0	0
70-74	0	0	0	0	0	0	0	0
75 up	0	0	0	0	0	0	0	0
Not Stated	0	0	0	0	0	0	0	0
TOTALS	0	0	0	0	0	0	0	0
SUM BY RACE	0		0		0		0	

Table 11-B-23
ALL PERSONS DISCHARGED FROM HOSPITALS ALIVE IN U.S., 1980
OTHER PRIMARY CARDIOMYOPATHIES
ICD-9-CM 425.4

<u>AGE</u>	<u>ALL RACES</u>		<u>WHITE</u>		<u>ALL OTHER</u>		<u>NOT STATED</u>	
	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>
0-4	0	416	0	416	0	0	0	0
5-9	0	0	0	0	0	0	0	0
10-14	0	144	0	144	0	0	0	0
15-19	164	147	164	0	0	0	0	147
20-24	605	0	605	0	0	0	0	0
25-29	628	569	474	450	154	119	0	0
30-34	811	477	449	296	362	181	0	0
35-39	1373	0	429	0	820	0	124	0
40-44	2968	742	2175	444	481	298	312	0
45-49	1518	326	1156	185	72	0	290	141
50-54	3445	2174	2796	1218	463	389	186	567
55-59	3086	795	2066	664	766	131	254	0
60-64	3144	3565	2749	2622	395	683	0	260
65-69	3106	1785	2362	1588	744	197	0	0
70-74	1517	2572	910	2009	607	426	0	137
75 up	1948	2275	1332	1849	616	256	0	170
Not Stated	0	0	0	0	0	0	0	0
TOTALS	24313	15987	17667	11885	5480	2680	1166	1422
SUM BY RACE	40300		29552		8160		2588	

Table 11-B-24
ALL PERSONS DISCHARGED FROM HOSPITALS ALIVE IN U.S., 1980
CONGESTIVE HEART FAILURE
ICD-9-CM 428.0

<u>AGE</u>	<u>ALL RACES</u>		<u>WHITE</u>		<u>ALL OTHER</u>		<u>NOT STATED</u>	
	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>
0-4	2931	6373	2521	4803	258	1125	152	445
5-9	652	571	160	571	492	0	0	0
10-14	449	582	315	582	134	0	0	0
15-19	186	183	0	183	186	0	0	0
20-24	0	169	0	169	0	0	0	0
25-29	133	1508	0	1126	0	382	133	0
30-34	1093	140	688	195	405	45	0	0
35-39	1361	3129	323	838	889	2291	149	0
40-44	2772	2398	2025	1815	674	583	73	0
45-49	6784	6648	4017	4524	1622	1533	1145	591
50-54	10851	7528	8479	6354	1422	814	950	360
55-59	18076	14781	12737	9621	3198	3401	2141	1759
60-64	24299	19907	18073	14943	3534	3643	2692	1321
65-69	42421	40862	32542	33038	3914	4464	5965	3360
70-74	52436	69325	43288	54259	5207	8852	3941	6214
75 up	116271	203347	97537	162875	8214	17190	10520	23282
Not Stated	0	0	0	0	0	0	0	0
TOTALS	280715	377551	222705	295896	30149	44323	27861	37332
SUM BY RACE	658266		518601		74472		65193	

Table 11-B-25
ALL PERSONS DISCHARGED FROM HOSPITALS ALIVE IN U.S., 1980
LEFT HEART FAILURE
ICD-9-CM 428.1

<u>AGE</u>	<u>ALL RACES</u>		<u>WHITE</u>		<u>ALL OTHER</u>		<u>NOT STATED</u>	
	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>
0-4	141	0	0	0	141	0	0	0
5-9	0	0	0	0	0	0	0	0
10-14	0	0	0	0	0	0	0	0
15-19	0	0	0	0	0	0	0	0
20-24	0	0	0	0	0	0	0	0
25-29	122	0	122	0	0	0	0	0
30-34	176	0	0	0	176	0	0	0
35-39	0	0	0	0	0	0	0	0
40-44	0	0	0	0	0	0	0	0
45-49	285	293	285	141	0	152	0	0
50-54	672	120	672	120	0	0	0	0
55-59	710	556	589	556	121	0	0	0
60-64	1180	322	906	322	0	0	274	0
65-69	1187	994	1187	994	0	0	0	0
70-74	2123	995	1477	573	199	0	447	422
75 up	2731	4826	1484	3630	358	198	889	998
Not Stated	0	0	0	0	0	0	0	0
TOTALS	9327	8106	6722	6336	995	350	1610	1420
SUM BY RACE	17433		13058		1345		3030	

Table 11-B-26
ALL PERSONS DISCHARGED FROM HOSPITALS ALIVE IN U.S., 1980
HEART FAILURE, UNSPECIFIED
ICD-9-CM 428.9

<u>AGE</u>	<u>ALL RACES</u>		<u>WHITE</u>		<u>ALL OTHER</u>		<u>NOT STATED</u>	
	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>
0-4	182	124	0	0	182	124	0	0
5-9	0	0	0	0	0	0	0	0
10-14	0	0	0	0	0	0	0	0
15-19	0	0	0	0	0	0	0	0
20-24	0	0	0	0	0	0	0	0
25-29	0	0	0	0	0	0	0	0
30-34	130	0	0	0	0	0	130	0
35-39	0	357	0	357	0	0	0	0
40-44	0	0	0	0	0	0	0	0
45-49	131	434	131	434	0	0	0	0
50-54	1369	2267	1369	2267	0	0	0	0
55-59	542	1919	542	1841	0	78	0	0
60-64	1260	1276	556	1045	585	231	119	0
65-69	2288	4096	2146	3766	142	198	0	132
70-74	3087	2072	1988	1694	950	0	149	378
75 up	7597	9181	6863	7061	0	972	734	1148
Not Stated	0	0	0	0	0	0	0	0
TOTALS	16586	21726	13595	18465	1859	1603	1132	1658
SUM BY RACE	38312		32060		3462		2790	

Table 11-B-27
ALL PERSONS DISCHARGED FROM HOSPITALS ALIVE IN U.S., 1980
MYOCARDITIS, UNSPECIFIED
ICD-9-CM 429.0

AGE	ALL RACES		WHITE		ALL OTHER		NOT STATED	
	MALE	FEMALE	MALE	FEMALE	MALE	FEMALE	MALE	FEMALE
0-4	128	150	128	150	0	0	0	0
5-9	0	134	0	134	0	0	0	0
10-14	0	102	0	102	0	0	0	0
15-19	175	0	175	0	0	0	0	0
20-24	0	136	0	136	0	0	0	0
25-29	146	0	146	0	0	0	0	0
30-34	241	263	241	186	0	77	0	0
35-39	143	0	143	0	0	0	0	0
40-44	0	0	0	0	0	0	0	0
45-49	689	0	689	0	0	0	0	0
50-54	438	260	438	260	0	0	0	0
55-59	213	233	213	233	0	0	0	0
60-64	457	498	457	498	0	0	0	0
65-69	787	722	639	722	148	0	0	0
70-74	680	829	419	829	261	0	0	0
75 up	679	2021	679	1798	0	0	0	223
Not Stated	0	0	0	0	0	0	0	0
TOTALS	4776	5348	4367	5048	409	77	0	223
SUM BY RACE	10124		9415		486		223	

Table 11-B-28
ALL PERSONS DISCHARGED FROM HOSPITALS ALIVE IN U.S., 1980
MYOCARDIAL DEGENERATION
ICD-9-CM 429.1

<u>AGE</u>	<u>ALL RACES</u>		<u>WHITE</u>		<u>ALL OTHER</u>		<u>NOT STATED</u>	
	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>
0-4	0	0	0	0	0	0	0	0
5-9	0	0	0	0	0	0	0	0
10-14	0	0	0	0	0	0	0	0
15-19	0	0	0	0	0	0	0	0
20-24	0	0	0	0	0	0	0	0
25-29	0	0	0	0	0	0	0	0
30-34	0	0	0	0	0	0	0	0
35-39	0	0	0	0	0	0	0	0
40-44	0	0	0	0	0	0	0	0
45-49	0	0	0	0	0	0	0	0
50-54	462	0	462	0	0	0	0	0
55-59	0	280	0	280	0	0	0	0
60-64	0	564	0	564	0	0	0	0
65-69	0	257	0	257	0	0	0	0
70-74	112	0	112	0	0	0	0	0
75 up	744	1160	579	976	0	0	165	184
Not Stated	0	0	0	0	0	0	0	0
TOTALS	1318	2261	1153	2077	0	0	165	184
SUM BY RACE	3579		3230		0		349	

Table 11-B-29
ALL PERSONS DISCHARGED FROM HOSPITALS ALIVE IN U.S., 1980
CARDIOMEGALY
ICD-9-CM 429.3

<u>AGE</u>	<u>ALL RACES</u>		<u>WHITE</u>		<u>ALL OTHER</u>		<u>NOT STATED</u>	
	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>
0-4	386	471	133	471	123	0	130	0
5-9	0	0	0	0	0	0	0	0
10-14	159	137	0	137	159	0	0	0
15-19	0	0	0	0	0	0	0	0
20-24	201	555	122	438	79	117	0	0
25-29	367	373	137	373	230	0	0	0
30-34	1030	1704	123	1000	907	417	0	287
35-39	1549	1099	797	450	752	649	0	0
40-44	2571	1076	1712	448	859	341	0	287
45-49	1359	1483	425	923	743	264	191	296
50-54	1218	1789	750	1056	468	512	0	221
55-59	2488	1700	1756	1116	605	373	127	211
60-64	4297	2117	3339	1631	821	183	137	303
65-69	3940	4985	3050	4117	890	438	0	430
70-74	6592	6136	4679	5004	1041	160	872	972
75 up	7465	16771	5957	11812	722	2524	786	2435
Not Stated	0	0	0	0	0	0	0	0
TOTALS	33622	40396	22980	28976	8399	5978	2243	5442
SUM BY RACE	74018		51956		14377		7685	

Table 11-B-30
ALL PERSONS DISCHARGED FROM HOSPITALS ALIVE IN U.S., 1980
SUMMARY ALL AGES AND ALL CONDITIONS
SELECTED CONDITIONS FOR WHICH HEART TRANSPLANTATION IS INDICATED

<u>AGE</u>	<u>ALL RACES</u>		<u>WHITE</u>		<u>ALL OTHER</u>		<u>NOT STATED</u>	
	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>
0-4	5035	9451	3982	7209	704	1376	349	866
5-9	652	705	160	705	492	0	0	0
10-14	939	1569	646	1251	293	188	0	130
15-19	821	2311	524	1561	186	330	111	420
20-24	1600	3497	1413	2554	79	533	108	410
25-29	3454	6307	2324	5309	881	848	249	150
30-34	8127	7048	5529	4768	2468	1415	130	865
35-39	16343	11940	11981	6873	2696	4344	1666	723
40-44	23830	11364	18712	7848	3560	2857	1558	659
45-49	38441	29446	29357	23829	4906	3639	4178	1978
50-54	69238	45163	57595	37439	4411	5054	7232	2670
55-59	105849	59323	84930	44129	8844	7780	12075	7414
60-64	123524	88346	98083	69077	11018	9034	14423	10235
65-69	144459	128651	116766	105113	11234	11985	16459	11553
70-74	175503	190004	143456	155319	15551	16488	16496	18197
75 up	338066	558408	282746	459136	23169	39599	32151	59673
Not Stated	0	0	0	0	0	0	0	0
TOTALS	1055881	1153533	858204	932120	90492	105470	107185	115943
SUM BY RACE	2209414		179024		195962		223128	

Table 11-B-31
ALL PERSONS DISCHARGED FROM HOSPITALS ALIVE IN U.S., 1980
AGES 5-54 ONLY
SELECTED CONDITIONS FOR WHICH HEART TRANSPLANTATION IS INDICATED

<u>AGE</u>	<u>ALL RACES</u>		<u>WHITE</u>		<u>ALL OTHER</u>		<u>NOT STATED</u>	
	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>
0-4								
5-9	652	705	160	705	492	0	0	0
10-14	939	1569	646	1251	293	188	0	130
15-19	821	2311	524	1561	186	330	111	420
20-24	1600	3497	1413	2554	79	533	108	410
25-29	3454	6307	2324	5309	881	848	249	150
30-34	8127	7048	5529	4768	2468	1415	130	865
35-39	16343	11940	11981	6873	2696	4344	1666	723
40-44	23830	11364	18712	7848	3560	2857	1558	659
45-49	38441	29446	29357	23829	4906	3639	4178	1978
50-54	69238	45163	57595	37439	4411	5054	7232	2670
55-59								
60-64								
65-69								
70-74								
75 up								
Not Stated	0	0	0	0	0	0	0	0
TOTALS	163445	119350	128241	92137	19972	19208	15232	8005
SUM BY RACE	282795		220378		39180		23237	

Table 11-B-32
ALL PERSONS DISCHARGED FROM HOSPITALS ALIVE IN U.S., 1980
AGES 10-54 ONLY
SELECTED CONDITIONS FOR WHICH HEART TRANSPLANTATION IS INDICATED

<u>AGE</u>	<u>ALL RACES</u>		<u>WHITE</u>		<u>ALL OTHER</u>		<u>NOT STATED</u>	
	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>
0-4								
5-9								
10-14	939	1569	646	1251	293	188	0	130
15-19	821	2311	524	1561	186	330	111	420
20-24	1600	3497	1413	2554	79	533	108	410
25-29	3454	6307	2324	5309	881	848	249	150
30-34	8127	7048	5529	4768	2468	1415	130	865
35-39	16343	11940	11981	6873	2696	4344	1666	723
40-44	23830	11364	18712	7848	3560	2857	1558	659
45-49	38441	29446	29357	23829	4906	3639	4178	1978
50-54	69238	45163	57595	37439	4411	5054	7232	2670
55-59								
60-64								
65-69								
70-74								
75 up								
Not Stated	0	0	0	0	0	0	0	0
TOTALS	162793	118645	128081	91432	19480	19208	15232	8005
SUM BY RACE	281438		219513		38688		23237	

Table 11-B-33
ALL PERSONS DISCHARGED FROM HOSPITALS ALIVE IN U.S., 1980
AGES 5-49 ONLY
SELECTED CONDITIONS FOR WHICH HEART TRANSPLANTATION IS INDICATED

<u>AGE</u>	<u>ALL RACES</u>		<u>WHITE</u>		<u>ALL OTHER</u>		<u>NOT STATED</u>	
	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>
0-4								
5-9	652	705	160	705	492	0	0	0
10-14	939	1569	646	1251	293	188	0	130
15-19	821	2311	524	1561	186	330	111	420
20-24	1600	3497	1413	2554	79	533	108	410
25-29	3454	6307	2324	5309	881	848	249	150
30-34	8127	7048	5529	4768	2468	1415	130	865
35-39	16343	11940	11981	6873	2696	4344	1666	723
40-44	23830	11364	18712	7848	3560	2857	1558	659
45-49	38441	29446	29357	23829	4906	3639	4178	1978
50-54								
55-59								
60-64								
65-69								
70-74								
75 up								
Not Stated	0	0	0	0	0	0	0	0
TOTALS	94207	74187	70646	54698	15561	14154	8000	5335
SUM BY RACE	168394		125344		29715		13335	

Table 11-B-34
ALL PERSONS DISCHARGED FROM HOSPITALS ALIVE IN U.S., 1980
AGES 10-49 ONLY
SELECTED CONDITIONS FOR WHICH HEART TRANSPLANTATION IS INDICATED

<u>AGE</u>	<u>ALL RACES</u>		<u>WHITE</u>		<u>ALL OTHER</u>		<u>NOT STATED</u>	
	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>
0-4								
5-9								
10-14	939	1569	646	1251	293	188	0	130
15-19	821	2311	524	1561	186	330	111	420
20-24	1600	3497	1413	2554	79	533	108	410
25-29	3454	6307	2324	5309	881	848	249	150
30-34	8127	7048	5529	4768	2468	1415	130	865
35-39	16343	11940	11981	6873	2696	4344	1666	723
40-44	23830	11364	18712	7848	3560	2857	1558	659
45-49	38441	29446	29357	23829	4906	3639	4178	1978
50-54								
55-59								
60-64								
65-69								
70-74								
75 up								
Not Stated	0	0	0	0	0	0	0	0
TOTALS	93555	73482	70486	53993	15069	14154	8000	5335
SUM BY RACE	167037		124479		29223		13335	

APPENDIX 11-C

DETAILED MORBIDITY TABLES FOR 1979

Table 11-C-1
ALL PERSONS DISCHARGED FROM HOSPITALS ALIVE IN U.S., 1979
MALIGNANT NEOPLASM OF THE HEART
ICD-9-CM 164.1

AGE	ALL RACES		WHITE		ALL OTHER		BLACK ONLY	
	MALE	FEMALE	MALE	FEMALE	MALE	FEMALE	MALE	FEMALE
0-4	0	0	0	0	0	0	0	0
5-9	0	0	0	0	0	0	0	0
10-14	0	0	0	0	0	0	0	0
15-19	0	0	0	0	0	0	0	0
20-24	0	0	0	0	0	0	0	0
25-29	0	0	0	0	0	0	0	0
30-34	0	0	0	0	0	0	0	0
35-39	0	0	0	0	0	0	0	0
40-44	0	0	0	0	0	0	0	0
45-49	0	0	0	0	0	0	0	0
50-54	0	0	0	0	0	0	0	0
55-59	0	0	0	0	0	0	0	0
60-64	190	0	190	0	0	0	0	0
65-69	0	0	0	0	0	0	0	0
70-74	0	0	0	0	0	0	0	0
75 up	0	0	0	0	0	0	0	0
Not Stated	0	0	0	0	0	0	0	0
TOTALS	190	0	190	0	0	0	0	0
SUM BY RACE	190		190		0		0	

Table 11-C-2
ALL PERSONS DISCHARGED FROM HOSPITALS ALIVE IN U.S., 1979
MITRAL STENOSIS
ICD-9-CM 394.0

	<u>ALL RACES</u>		<u>WHITE</u>		<u>ALL OTHER</u>		<u>NOT STATED</u>	
<u>AGE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>
0-4	123	0	0	0	123	0	0	0
5-9	0	274	0	0	0	274	0	0
10-14	0	0	0	0	0	0	0	0
15-19	0	0	0	0	0	0	0	0
20-24	0	154	0	154	0	0	0	0
25-29	0	129	0	129	0	0	0	0
30-34	0	486	0	363	0	123	0	0
35-39	137	356	137	0	0	0	0	356
40-44	78	588	78	588	0	0	0	0
45-49	80	726	80	528	0	0	0	198
50-54	376	957	376	957	0	0	0	0
55-59	856	1415	434	1246	422	169	0	0
60-64	137	2626	137	1868	0	758	0	0
65-69	142	478	142	431	0	47	0	0
70-74	0	983	0	983	0	0	0	0
75 up	166	650	166	423	0	0	0	227
Not Stated	0	0	0	0	0	0	0	0
TOTALS	2095	9822	1550	7670	545	1371	0	781
SUM BY RACE	11917		9220		1916		781	

Table 11-C-3
ALL PERSONS DISCHARGED FROM HOSPITALS ALIVE IN U.S., 1979
RHEUMATIC MITRAL INSUFFICIENCY
ICD-9-CM 394.1

<u>AGE</u>	<u>ALL RACES</u>		<u>WHITE</u>		<u>ALL OTHER</u>		<u>NOT STATED</u>	
	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>
0-4	0	0	0	0	0	0	0	0
5-9	0	0	0	0	0	0	0	0
10-14	0	0	0	0	0	0	0	0
15-19	0	375	0	0	0	164	0	211
20-24	0	467	0	145	0	322	0	0
25-29	0	0	0	0	0	0	0	0
30-34	0	0	0	0	0	0	0	0
35-39	0	245	0	0	0	0	0	245
40-44	0	638	0	638	0	0	0	0
45-49	0	0	0	0	0	0	0	0
50-54	159	0	159	0	0	0	0	0
55-59	0	0	0	0	0	0	0	0
60-64	0	0	0	0	0	0	0	0
65-69	0	0	0	0	0	0	0	0
70-74	0	0	0	0	0	0	0	0
75 up	0	97	0	0	0	97	0	0
Not Stated	0	0	0	0	0	0	0	0
TOTALS	159	1822	159	783	0	583	0	456
SUM BY RACE	1981		942		583		456	

Table 11-C-4
ALL PERSONS DISCHARGED FROM HOSPITALS ALIVE IN U.S., 1979
MITRAL STENOSIS WITH INSUFFICIENCY
ICD-9-CM 394.2

<u>AGE</u>	<u>ALL RACES</u>		<u>WHITE</u>		<u>ALL OTHER</u>		<u>NOT STATED</u>	
	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>
0-4	0	0	0	0	0	0	0	0
5-9	0	0	0	0	0	0	0	0
10-14	0	0	0	0	0	0	0	0
15-19	0	0	0	0	0	0	0	0
20-24	0	0	0	0	0	0	0	0
25-29	0	0	0	0	0	0	0	0
30-34	0	0	0	0	0	0	0	0
35-39	0	169	0	169	0	0	0	0
40-44	0	0	0	0	0	0	0	0
45-49	0	0	0	0	0	0	0	0
50-54	158	114	158	114	0	0	0	0
55-59	161	260	161	260	0	0	0	0
60-64	899	157	612	157	0	0	287	0
65-69	0	167	0	167	0	0	0	0
70-74	0	265	0	265	0	0	0	0
75 up	0	0	0	0	0	0	0	0
Not Stated	0	0	0	0	0	0	0	0
TOTALS	1218	1132	931	1132	0	0	287	0
SUM BY RACE	2350		2063		0		287	

Table 11-C-5
ALL PERSONS DISCHARGED FROM HOSPITALS ALIVE IN U.S., 1979
OTHER AND UNSPECIFIED MITRAL VALVE DISEASES
ICD-9-CM 394.9

<u>AGE</u>	<u>ALL RACES</u>		<u>WHITE</u>		<u>ALL OTHER</u>		<u>NOT STATED</u>	
	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>
0-4	0	0	0	0	0	0	0	0
5-9	0	0	0	0	0	0	0	0
10-14	0	0	0	0	0	0	0	0
15-19	647	811	647	725	0	86	0	0
20-24	103	1188	0	772	103	285	0	131
25-29	263	932	263	472	0	0	0	460
30-34	217	1618	0	1400	217	218	0	0
35-39	655	1349	239	856	416	0	0	493
40-44	921	2668	921	2241	0	427	0	0
45-49	687	1388	687	1206	0	0	0	182
50-54	878	2150	653	1749	0	222	225	179
55-59	1470	2907	1470	2518	0	210	0	179
60-64	1050	2238	728	1577	173	153	149	508
65-69	452	352	300	352	152	0	0	0
70-74	776	2028	428	1906	155	0	193	122
75 up	463	1536	308	1536	155	0	0	0
Not Stated	0	0	0	0	0	0	0	0
TOTALS	8582	21165	6644	17310	1371	1601	567	2254
SUM BY RACE	29747		23954		2972		2821	

Table 11-C-6
ALL PERSONS DISCHARGED FROM HOSPITALS ALIVE IN U.S., 1979
RHEUMATIC AORTIC STENOSIS
ICD-9-CM 395.0

<u>AGE</u>	<u>ALL RACES</u>		<u>WHITE</u>		<u>ALL OTHER</u>		<u>NOT STATED</u>	
	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>
0-4	0	0	0	0	0	0	0	0
5-9	0	0	0	0	0	0	0	0
10-14	0	0	0	0	0	0	0	0
15-19	0	0	0	0	0	0	0	0
20-24	0	0	0	0	0	0	0	0
25-29	0	0	0	0	0	0	0	0
30-34	0	0	0	0	0	0	0	0
35-39	0	0	0	0	0	0	0	0
40-44	0	0	0	0	0	0	0	0
45-49	0	0	0	0	0	0	0	0
50-54	0	0	0	0	0	0	0	0
55-59	382	0	0	0	0	0	0	382
60-64	0	199	0	199	0	0	0	0
65-69	0	0	0	0	0	0	0	0
70-74	0	179	0	179	0	0	0	0
75 up	0	0	0	0	0	0	0	0
Not Stated	0	0	0	0	0	0	0	0
TOTALS	382	378	0	378	0	0	0	382
SUM BY RACE	760		378		0		382	

Table 11-C-7
ALL PERSONS DISCHARGED FROM HOSPITALS ALIVE IN U.S., 1979
RHEUMATIC AORTIC INSUFFICIENCY
ICD-9-CM 395.1

AGE	<u>ALL RACES</u>		<u>WHITE</u>		<u>ALL OTHER</u>		<u>NOT STATED</u>	
	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>
0-4	0	0	0	0	0	0	0	0
5-9	0	0	0	0	0	0	0	0
10-14	0	0	0	0	0	0	0	0
15-19	0	0	0	0	0	0	0	0
20-24	0	0	0	0	0	0	0	0
25-29	0	0	0	0	0	0	0	0
30-34	0	0	0	0	0	0	0	0
35-39	0	0	0	0	0	0	0	0
40-44	0	0	0	0	0	0	0	0
45-49	0	354	0	354	0	0	0	0
50-54	0	0	0	0	0	0	0	0
55-59	0	0	0	0	0	0	0	0
60-64	0	0	0	0	0	0	0	0
65-69	0	0	0	0	0	0	0	0
70-74	0	0	0	0	0	0	0	0
75 up	263	0	263	0	0	0	0	0
Not Stated	0	0	0	0	0	0	0	0
TOTALS	263	354	263	354	0	0	0	0
SUM BY RACE	617		617		0		0	

Table 11-C-8
 ALL PERSONS DISCHARGED FROM HOSPITALS ALIVE IN U.S., 1979
 RHEUMATIC AORTIC STENOSIS WITH INSUFFICIENCY
 ICD-9-CM 395.2

<u>AGE</u>	<u>ALL RACES</u>		<u>WHITE</u>		<u>ALL OTHER</u>		<u>NOT STATED</u>	
	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>
0-4	0	0	0	0	0	0	0	0
5-9	0	0	0	0	0	0	0	0
10-14	0	0	0	0	0	0	0	0
15-19	0	0	0	0	0	0	0	0
20-24	0	0	0	0	0	0	0	0
25-29	0	0	0	0	0	0	0	0
30-34	0	0	0	0	0	0	0	0
35-39	0	0	0	0	0	0	0	0
40-44	0	0	0	0	0	0	0	0
45-49	0	0	0	0	0	0	0	0
50-54	0	0	0	0	0	0	0	0
55-59	0	0	0	0	0	0	0	0
60-64	0	0	0	0	0	0	0	0
65-69	0	0	0	0	0	0	0	0
70-74	0	0	0	0	0	0	0	0
75 up	0	0	0	0	0	0	0	0
Not Stated	0	0	0	0	0	0	0	0
TOTALS	0	0	0	0	0	0	0	0
SUM BY RACE	0		0		0		0	

Table 11-C-9
ALL PERSONS DISCHARGED FROM HOSPITALS ALIVE IN U.S., 1979
OTHER AND UNSPECIFIED RHEUMATIC AORTIC DISEASES
ICD-9-CM 395.9

<u>AGE</u>	<u>ALL RACES</u>		<u>WHITE</u>		<u>ALL OTHER</u>		<u>NOT STATED</u>	
	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>
0-4	0	0	0	0	0	0	0	0
5-9	0	0	0	0	0	0	0	0
10-14	0	0	0	0	0	0	0	0
15-19	0	0	0	0	0	0	0	0
20-24	0	0	0	0	0	0	0	0
25-29	0	0	0	0	0	0	0	0
30-34	0	0	0	0	0	0	0	0
35-39	0	0	0	0	0	0	0	0
40-44	0	0	0	0	0	0	0	0
45-49	175	0	175	0	0	0	0	0
50-54	0	0	0	0	0	0	0	0
55-59	0	0	0	0	0	0	0	0
60-64	0	0	0	0	0	0	0	0
65-69	0	0	0	0	0	0	0	0
70-74	0	0	0	0	0	0	0	0
75 up	0	0	0	0	0	0	0	0
Not Stated	0	0	0	0	0	0	0	0
TOTALS	175	0	175	0	0	0	0	0
SUM BY RACE	175		175		0		0	

Table 11-C-10
ALL PERSONS DISCHARGED FROM HOSPITALS ALIVE IN U.S., 1979
MITRAL VALVE STENOSIS AND AORTIC VALVE STENOSIS
ICD-9-CM 396.0

<u>AGE</u>	<u>ALL RACES</u>		<u>WHITE</u>		<u>ALL OTHER</u>		<u>NOT STATED</u>	
	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>
0-4	0	0	0	0	0	0	0	0
5-9	0	0	0	0	0	0	0	0
10-14	0	0	0	0	0	0	0	0
15-19	0	0	0	0	0	0	0	0
20-24	0	0	0	0	0	0	0	0
25-29	0	0	0	0	0	0	0	0
30-34	145	0	145	0	0	0	0	0
35-39	160	113	160	113	0	0	0	0
40-44	0	0	0	0	0	0	0	0
45-49	0	0	0	0	0	0	0	0
50-54	0	0	0	0	0	0	0	0
55-59	0	667	0	667	0	0	0	0
60-64	0	0	0	0	0	0	0	0
65-69	0	0	0	0	0	0	0	0
70-74	0	0	0	0	0	0	0	0
75 up	0	161	0	161	0	0	0	0
Not Stated	0	0	0	0	0	0	0	0
TOTALS	305	941	305	941	0	0	0	0
SUM BY RACE	1246		1246		0		0	

Table 11-C-11
ALL PERSONS DISCHARGED FROM HOSPITALS ALIVE IN U.S., 1979
MITRAL VALVE STENOSIS AND AORTIC VALVE INSUFFICIENCY
ICD-9-CM 396.1

<u>AGE</u>	<u>ALL RACES</u>		<u>WHITE</u>		<u>ALL OTHER</u>		<u>NOT STATED</u>	
	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>
0-4	0	0	0	0	0	0	0	0
5-9	0	0	0	0	0	0	0	0
10-14	0	0	0	0	0	0	0	0
15-19	0	0	0	0	0	0	0	0
20-24	0	186	0	186	0	0	0	0
25-29	0	0	0	0	0	0	0	0
30-34	0	160	0	160	0	0	0	0
35-39	0	0	0	0	0	0	0	0
40-44	0	0	0	0	0	0	0	0
45-49	0	132	0	132	0	0	0	0
50-54	0	240	0	240	0	0	0	0
55-59	0	0	0	0	0	0	0	0
60-64	0	143	0	143	0	0	0	0
65-69	0	0	0	0	0	0	0	0
70-74	0	0	0	0	0	0	0	0
75 up	126	0	126	0	0	0	0	0
Not Stated	0	0	0	0	0	0	0	0
TOTALS	126	861	126	861	0	0	0	0
SUM BY RACE	987		987		0		0	

Table 11-C-12
ALL PERSONS DISCHARGED FROM HOSPITALS ALIVE IN U.S., 1979
MITRAL VALVE INSUFFICIENCY AND AORTIC VALVE STENOSIS
ICD-9-CM 396.2

<u>AGE</u>	<u>ALL RACES</u>		<u>WHITE</u>		<u>ALL OTHER</u>		<u>NOT STATED</u>	
	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>
0-4	0	0	0	0	0	0	0	0
5-9	0	0	0	0	0	0	0	0
10-14	0	0	0	0	0	0	0	0
15-19	0	0	0	0	0	0	0	0
20-24	0	0	0	0	0	0	0	0
25-29	0	0	0	0	0	0	0	0
30-34	0	0	0	0	0	0	0	0
35-39	164	0	164	0	0	0	0	0
40-44	0	0	0	0	0	0	0	0
45-49	0	0	0	0	0	0	0	0
50-54	0	0	0	0	0	0	0	0
55-59	201	0	210	0	0	0	0	0
60-64	256	0	256	0	0	0	0	0
65-69	158	492	158	171	0	0	0	321
70-74	131	0	131	0	0	0	0	0
75 up	1306	510	680	510	144	0	482	0
Not Stated	0	0	0	0	0	0	0	0
TOTALS	2216	1002	1590	681	144	0	482	321
SUM BY RACE	3218		2271		144		803	

Table 11-C-13
ALL PERSONS DISCHARGED FROM HOSPITALS ALIVE IN U.S., 1979
MITRAL VALVE INSUFFICIENCY AND AORTIC VALVE INSUFFICIENCY
ICD-9-CM 396.3

<u>AGE</u>	<u>ALL RACES</u>		<u>WHITE</u>		<u>ALL OTHER</u>		<u>NOT STATED</u>	
	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>
0-4	0	0	0	0	0	0	0	0
5-9	0	0	0	0	0	0	0	0
10-14	0	0	0	0	0	0	0	0
15-19	0	126	0	0	0	0	0	126
20-24	0	0	0	0	0	0	0	0
25-29	0	0	0	0	0	0	0	0
30-34	0	86	0	86	0	0	0	0
35-39	0	0	0	0	0	0	0	0
40-44	0	0	0	0	0	0	0	0
45-49	201	0	0	0	0	0	201	0
50-54	130	0	130	0	0	0	0	0
55-59	241	190	0	190	241	0	0	0
60-64	0	0	0	0	0	0	0	0
65-69	0	246	0	0	0	246	0	0
70-74	0	122	0	122	0	0	0	0
75 up	607	0	468	0	139	0	0	0
Not Stated	0	0	0	0	0	0	0	0
TOTALS	1179	770	598	398	380	246	201	126
SUM BY RACE	1949		996		626		327	

Table 11-C-14
ALL PERSONS DISCHARGED FROM HOSPITALS ALIVE IN U.S., 1979
MULTIPLE INVOLVEMENT OF MITRAL AND AORTIC VALVES
ICD-9-CM 396.8

<u>AGE</u>	<u>ALL RACES</u>		<u>WHITE</u>		<u>ALL OTHER</u>		<u>NOT STATED</u>	
	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>
0-4	0	0	0	0	0	0	0	0
5-9	0	0	0	0	0	0	0	0
10-14	0	0	0	0	0	0	0	0
15-19	0	0	0	0	0	0	0	0
20-24	0	166	0	166	0	0	0	0
25-29	0	0	0	0	0	0	0	0
30-34	0	0	0	0	0	0	0	0
35-39	0	0	0	0	0	0	0	0
40-44	0	0	0	0	0	0	0	0
45-49	0	0	0	0	0	0	0	0
50-54	0	0	0	0	0	0	0	0
55-59	0	0	0	0	0	0	0	0
60-64	96	210	96	0	0	210	0	0
65-69	0	0	0	0	0	0	0	0
70-74	124	294	124	0	0	0	0	294
75 up	0	0	0	0	0	0	0	0
Not Stated	0	0	0	0	0	0	0	0
TOTALS	220	670	220	166	0	210	0	294
SUM BY RACE	890		386		210		294	

Table 11-C-15
ALL PERSONS DISCHARGED FROM HOSPITALS ALIVE IN U.S., 1979
MULTIPLE AND AORTIC VALVE DISEASES, UNSPECIFIED
ICD-9-CM 396.9

AGE	ALL RACES		WHITE		ALL OTHER		NOT STATED	
	MALE	FEMALE	MALE	FEMALE	MALE	FEMALE	MALE	FEMALE
0-4	0	111	0	0	0	111	0	0
5-9	0	0	0	0	0	0	0	0
10-14	0	0	0	0	0	0	0	0
15-19	0	0	0	0	0	0	0	0
20-24	0	0	0	0	0	0	0	0
25-29	0	0	0	0	0	0	0	0
30-34	0	0	0	0	0	0	0	0
35-39	0	107	0	107	0	0	0	0
40-44	0	0	0	0	0	0	0	0
45-49	0	0	0	0	0	0	0	0
50-54	0	147	0	147	0	0	0	0
55-59	0	203	0	203	0	0	0	0
60-64	0	161	0	161	0	0	0	0
65-69	0	0	0	0	0	0	0	0
70-74	0	296	0	296	0	0	0	0
75 up	0	183	0	139	0	44	0	0
Not Stated	0	0	0	0	0	0	0	0
TOTALS	0	1208	0	1053	0	155	0	0
SUM BY RACE	1208		1053		155		0	

Table 11-C-16
ALL PERSONS DISCHARGED FROM HOSPITALS ALIVE IN U.S., 1979
RHEUMATIC MYOCARDITIS
ICD-9-CM 398.0

<u>AGE</u>	<u>ALL RACES</u>		<u>WHITE</u>		<u>ALL OTHER</u>		<u>NOT STATED</u>	
	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>
0-4	0	0	0	0	0	0	0	0
5-9	0	0	0	0	0	0	0	0
10-14	0	0	0	0	0	0	0	0
15-19	0	0	0	0	0	0	0	0
20-24	0	0	0	0	0	0	0	0
25-29	0	0	0	0	0	0	0	0
30-34	0	0	0	0	0	0	0	0
35-39	0	0	0	0	0	0	0	0
40-44	0	0	0	0	0	0	0	0
45-49	167	0	167	0	0	0	0	0
50-54	0	163	0	163	0	0	0	0
55-59	0	0	0	0	0	0	0	0
60-64	0	0	0	0	0	0	0	0
65-69	0	0	0	0	0	0	0	0
70-74	0	0	0	0	0	0	0	0
75 up	0	0	0	0	0	0	0	0
Not Stated	0	0	0	0	0	0	0	0
TOTALS	167	163	167	163	0	0	0	0
SUM BY RACE	330		330		0		0	

Table 11-C-17
ALL PERSONS DISCHARGED FROM HOSPITALS ALIVE IN U.S., 1979
OTHER AND UNSPECIFIED RHEUMATIC HEART DISEASES
ICD-9-CM 398.9, 398.90, 398.91, 398.99

<u>AGE</u>	<u>ALL RACES</u>		<u>WHITE</u>		<u>ALL OTHER</u>		<u>NOT STATED</u>	
	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>
0-4	0	0	0	0	0	0	0	0
5-9	0	0	0	0	0	0	0	0
10-14	136	145	0	145	136	0	0	0
15-19	0	788	0	244	0	544	0	0
20-24	697	2299	697	618	0	1681	0	0
25-29	178	1805	178	1159	0	646	0	0
30-34	664	3247	664	2453	0	482	0	312
35-39	779	2393	652	1811	0	335	127	247
40-44	499	3096	138	2212	174	752	187	132
45-49	1544	3511	1457	2425	87	838	0	248
50-54	1137	3474	1137	3054	0	420	0	0
55-59	3421	3899	3337	3128	84	352	0	419
60-64	1573	3685	1428	3300	0	0	145	385
65-69	2606	5348	2472	5348	0	0	134	0
70-74	1051	2149	917	2149	0	0	134	0
75 up	690	4385	555	3198	0	333	135	854
Not Stated	0	0	0	0	0	0	0	0
TOTALS	14975	40224	13632	31244	481	6383	862	2597
SUM BY RACE	55199		44876		6864		3459	

Table 11-C-18
ALL PERSONS DISCHARGED FROM HOSPITALS ALIVE IN U.S., 1979
CORONARY ATHEROSCLEROSIS
ICD-9-CM 414.0

<u>AGE</u>	<u>ALL RACES</u>		<u>WHITE</u>		<u>ALL OTHER</u>		<u>NOT STATED</u>	
	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>
0-4	2117	1012	2117	1012	0	0	0	0
5-9	0	422	0	264	0	158	0	0
10-14	0	0	0	0	0	0	0	0
15-19	414	0	131	0	129	0	154	0
20-24	0	240	0	240	0	0	0	0
25-29	0	141	0	141	0	0	0	0
30-34	2444	513	1732	513	156	0	556	0
35-39	6351	1548	4889	1266	345	282	1117	0
40-44	16582	2168	13565	1687	867	481	2150	0
45-49	32370	6765	26331	5361	1592	160	4447	1244
50-54	44604	17152	38757	14677	1986	1252	3861	1223
55-59	56767	28846	46542	23971	3354	2379	6871	2496
60-64	78048	43021	66737	35953	3195	3529	8116	3539
65-69	83647	69325	68849	55901	4790	5141	10008	8283
70-74	93881	85448	76475	72887	5034	4321	12372	8240
75 up	196188	292026	162495	233687	10516	13437	23177	44902
Not Stated	0	0	0	0	0	0	0	0
TOTALS	613413	548627	508620	447560	31964	31140	72829	69927
SUM BY RACE	1162040		956180		63104		142756	

Table 11-C-19
ALL PERSONS DISCHARGED FROM HOSPITALS ALIVE IN U.S., 1979
ANEURYSM OF HEART
ICD-9-CM 414.1

<u>AGE</u>	<u>ALL RACES</u>		<u>WHITE</u>		<u>ALL OTHER</u>		<u>NOT STATED</u>	
	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>
0-4	183	306	183	306	0	0	0	0
5-9	0	0	0	0	0	0	0	0
10-14	0	0	0	0	0	0	0	0
15-19	0	0	0	0	0	0	0	0
20-24	0	0	0	0	0	0	0	0
25-29	0	0	0	0	0	0	0	0
30-34	0	0	0	0	0	0	0	0
35-39	479	0	479	0	0	0	0	0
40-44	450	0	450	0	0	0	0	0
45-49	1111	0	1111	0	0	0	0	0
50-54	1497	126	1497	126	0	0	0	0
55-59	285	248	285	248	0	0	0	0
60-64	2181	1276	2018	829	163	0	0	447
65-69	645	648	448	567	197	0	0	81
70-74	442	171	442	171	0	0	0	0
75 up	678	368	404	108	0	62	274	198
Not Stated	0	0	0	0	0	0	0	0
TOTALS	7951	3143	7317	2355	360	62	274	726
SUM BY RACE	11094		9672		422		1000	

Table 11-C-20
ALL PERSONS DISCHARGED FROM HOSPITALS ALIVE IN U.S., 1979
OTHER SPECIFIED FORMS OF CHRONIC ISCHEMIC HEART DISEASE
ICD-9-CM 414.8

<u>AGE</u>	<u>ALL RACES</u>		<u>WHITE</u>		<u>ALL OTHER</u>		<u>NOT STATED</u>	
	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>
0-4	0	0	0	0	0	0	0	0
5-9	0	0	0	0	0	0	0	0
10-14	0	0	0	0	0	0	0	0
15-19	0	0	0	0	0	0	0	0
20-24	0	126	0	126	0	0	0	0
25-29	0	0	0	0	0	0	0	0
30-34	0	207	0	207	0	0	0	0
35-39	1166	1266	1166	620	0	646	0	0
40-44	1007	518	892	434	115	84	0	0
45-49	1396	1283	1200	921	0	241	196	121
50-54	1871	230	857	230	241	0	773	0
55-59	3273	1800	2209	1800	622	0	442	0
60-64	2097	952	1971	590	0	76	126	286
65-69	4036	2849	3930	2466	106	236	0	174
70-74	2502	3351	2502	2694	0	223	0	434
75 up	4909	7651	4909	6743	0	455	0	453
Not Stated	0	0	0	0	0	0	0	0
TOTALS	22257	20233	19636	16831	1084	1961	1537	1441
SUM BY RACE	42490		36467		3045		2978	

Table 11-C-21
ALL PERSONS DISCHARGED FROM HOSPITALS ALIVE IN U.S., 1979
AORTIC VALVE DISORDERS
ICD-9-CM 424.1

<u>AGE</u>	<u>ALL RACES</u>		<u>WHITE</u>		<u>ALL OTHER</u>		<u>NOT STATED</u>	
	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>
0-4	92	142	92	142	0	0	0	0
5-9	0	0	0	0	0	0	0	0
10-14	180	147	180	0	0	0	0	147
15-19	0	186	0	186	0	0	0	0
20-24	0	237	0	237	0	0	0	0
25-29	349	0	349	0	0	0	0	0
30-34	0	0	0	0	0	0	0	0
35-39	0	0	0	0	0	0	0	0
40-44	195	0	195	0	0	0	0	0
45-49	541	1162	347	966	194	0	0	196
50-54	1951	1179	1231	795	328	384	392	0
55-59	2528	2037	2425	2037	103	0	0	0
60-64	3232	1561	2856	1338	376	0	0	223
65-69	5452	2159	3060	1135	863	0	1529	1024
70-74	3216	5486	2633	4361	186	831	397	294
75 up	13169	13012	8856	8478	1649	1053	2664	3481
Not Stated	0	0	0	0	0	0	0	0
TOTALS	30905	27308	22224	19675	3699	2268	4982	5365
SUM BY RACE	58213		41899		5967		10347	

Table 11-C-22
ALL PERSONS DISCHARGED FROM HOSPITALS ALIVE IN U.S., 1979
ENDOMYOCARDIAL FIBROSIS
ICD-9-CM 425.0

<u>AGE</u>	<u>ALL RACES</u>		<u>WHITE</u>		<u>ALL OTHER</u>		<u>NOT STATED</u>	
	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>
0-4	0	0	0	0	0	0	0	0
5-9	0	0	0	0	0	0	0	0
10-14	0	0	0	0	0	0	0	0
15-19	0	0	0	0	0	0	0	0
20-24	0	0	0	0	0	0	0	0
25-29	0	0	0	0	0	0	0	0
30-34	0	0	0	0	0	0	0	0
35-39	0	0	0	0	0	0	0	0
40-44	0	0	0	0	0	0	0	0
45-49	0	0	0	0	0	0	0	0
50-54	0	0	0	0	0	0	0	0
55-59	0	0	0	0	0	0	0	0
60-64	0	0	0	0	0	0	0	0
65-69	0	0	0	0	0	0	0	0
70-74	0	0	0	0	0	0	0	0
75 up	0	0	0	0	0	0	0	0
Not Stated	0	0	0	0	0	0	0	0
TOTALS	0	0	0	0	0	0	0	0
SUM BY RACE	0		0		0		0	

Table 11-C-23
ALL PERSONS DISCHARGED FROM HOSPITALS ALIVE IN U.S., 1979
OTHER PRIMARY CARDIOMYOPATHIES
ICD-9-CM 425.4

<u>AGE</u>	<u>ALL RACES</u>		<u>WHITE</u>		<u>ALL OTHER</u>		<u>NOT STATED</u>	
	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>
0-4	135	0	135	0	0	0	0	0
5-9	0	238	0	238	0	0	0	0
10-14	0	0	0	0	0	0	0	0
15-19	0	0	0	0	0	0	0	0
20-24	133	109	133	0	0	109	0	0
25-29	521	615	365	615	156	0	0	0
30-34	1035	608	828	463	207	145	0	0
35-39	643	788	198	209	69	579	376	0
40-44	1661	621	1396	310	265	311	0	0
45-49	2444	1314	2157	0	84	913	203	401
50-54	1889	1679	1580	1151	147	528	162	0
55-59	2793	1355	2015	671	161	219	617	465
60-64	2271	1976	1508	1976	763	0	0	0
65-69	3489	2036	2695	1031	429	816	365	189
70-74	1385	1461	1048	1070	139	391	198	0
75 up	1774	2443	1774	2086	0	220	0	137
Not Stated	0	0	0	0	0	0	0	0
TOTALS	20173	15243	15832	9820	2420	4231	1921	1192
SUM BY RACE	35416		25652		6651		3113	

Table 11-C-24
ALL PERSONS DISCHARGED FROM HOSPITALS ALIVE IN U.S., 1979
CONGESTIVE HEART FAILURE
ICD-9-CM 428.0

<u>AGE</u>	<u>ALL RACES</u>		<u>WHITE</u>		<u>ALL OTHER</u>		<u>NOT STATED</u>	
	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>
0-4	4200	2751	3174	1949	871	263	155	539
5-9	397	107	397	107	0	0	0	0
10-14	186	476	0	0	186	211	0	265
15-19	112	518	112	381	0	0	0	137
20-24	829	1203	655	383	0	549	174	271
25-29	811	476	693	476	118	0	0	0
30-34	972	1352	853	830	0	522	119	0
35-39	2593	1160	1341	716	1252	444	0	0
40-44	2346	2037	1538	600	673	1244	135	193
45-49	7876	4577	5126	1904	1611	2018	1139	655
50-54	15198	6604	11517	3781	3004	2388	677	435
55-59	20739	14839	17499	11005	1661	1754	1579	2080
60-64	26856	16687	19970	13347	4256	2006	2630	1334
65-69	40604	35458	33020	26577	4164	4425	3420	4456
70-74	48100	45599	36600	37093	3837	3568	7663	4938
75 up	114456	161160	91582	128004	10193	14275	12681	18881
Not Stated	0	0	0	0	0	0	0	0
TOTALS	286275	295004	224077	227153	31826	33667	30372	34184
SUM BY RACE	581279		451230		65493		64556	

Table 11-C-25
ALL PERSONS DISCHARGED FROM HOSPITALS ALIVE IN U.S., 1979
LEFT HEART FAILURE
ICD-9-CM 428.1

AGE	ALL RACES		WHITE		ALL OTHER		NOT STATED	
	MALE	FEMALE	MALE	FEMALE	MALE	FEMALE	MALE	FEMALE
0-4	0	0	0	0	0	0	0	0
5-9	0	0	0	0	0	0	0	0
10-14	0	0	0	0	0	0	0	0
15-19	0	0	0	0	0	0	0	0
20-24	0	0	0	0	0	0	0	0
25-29	0	0	0	0	0	0	0	0
30-34	0	119	0	0	0	0	0	119
35-39	0	141	0	141	0	0	0	0
40-44	0	0	0	0	0	0	0	0
45-49	336	132	336	132	0	0	0	0
50-54	319	330	127	330	192	0	0	0
55-59	181	49	181	49	0	0	0	0
60-64	881	480	754	480	0	0	127	0
65-69	1396	758	974	758	422	0	0	0
70-74	529	656	406	360	123	296	0	0
75 up	1126	3208	1126	2675	0	0	0	533
Not Stated	0	0	0	0	0	0	0	0
TOTALS	4768	5873	3904	4925	737	296	127	652
SUM BY RACE	10641		8829		1033		779	

Table 11-C-26
ALL PERSONS DISCHARGED FROM HOSPITALS ALIVE IN U.S., 1979
HEART FAILURE, UNSPECIFIED
ICD-9-CM 428.9

<u>AGE</u>	<u>ALL RACES</u>		<u>WHITE</u>		<u>ALL OTHER</u>		<u>NOT STATED</u>	
	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>
0-4	717	1244	717	923	0	172	0	149
5-9	772	0	636	0	136	0	0	0
10-14	87	0	0	0	87	0	0	0
15-19	321	273	130	0	191	273	0	0
20-24	0	256	0	113	0	143	0	0
25-29	269	0	154	0	115	0	0	0
30-34	632	291	0	155	632	136	0	0
35-39	161	349	0	230	161	0	0	119
40-44	1015	593	186	0	829	458	0	135
45-49	2440	3262	1691	1099	749	1797	0	366
50-54	2649	2747	1520	1682	878	900	251	165
55-59	2077	2523	1748	2019	131	504	198	0
60-64	3783	2772	3406	2254	377	518	0	0
65-69	4261	3463	2429	2692	689	189	1143	582
70-74	3976	6874	3258	5518	508	782	210	574
75 up	8998	18347	6875	16513	1086	837	1037	997
Not Stated	0	0	0	0	0	0	0	0
TOTALS	32158	42994	22750	33198	6569	6709	2839	3087
SUM BY RACE	75152		55948		13278		5926	

Table 11-C-27
ALL PERSONS DISCHARGED FROM HOSPITALS ALIVE IN U.S., 1979
MYOCARDITIS, UNSPECIFIED
ICD-9-CM 429.0

AGE	ALL RACES		WHITE		ALL OTHER		NOT STATED	
	MALE	FEMALE	MALE	FEMALE	MALE	FEMALE	MALE	FEMALE
0-4	0	0	0	0	0	0	0	0
5-9	0	0	0	0	0	0	0	0
10-14	0	0	0	0	0	0	0	0
15-19	0	0	0	0	0	0	0	0
20-24	0	0	0	0	0	0	0	0
25-29	0	0	0	0	0	0	0	0
30-34	126	0	126	0	0	0	0	0
35-39	0	0	0	0	0	0	0	0
40-44	0	0	0	0	0	0	0	0
45-49	0	104	0	104	0	0	0	0
50-54	0	0	0	0	0	0	0	0
55-59	197	0	197	0	0	0	0	0
60-64	298	431	298	431	0	0	0	0
65-69	189	247	189	247	0	0	0	0
70-74	0	331	0	331	0	0	0	0
75 up	280	744	280	589	0	155	0	0
Not Stated	0	0	0	0	0	0	0	0
TOTALS	1090	1857	1090	1702	0	155	0	0
SUM BY RACE	2947		2792		155		0	

Table 11-C-28
ALL PERSONS DISCHARGED FROM HOSPITALS ALIVE IN U.S., 1979
MYOCARDIAL DEGENERATION
ICD-9-CM 429.1

<u>AGE</u>	<u>ALL RACES</u>		<u>WHITE</u>		<u>ALL OTHER</u>		<u>NOT STATED</u>	
	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>
0-4	180	124	180	124	0	0	0	0
5-9	0	0	0	0	0	0	0	0
10-14	0	0	0	0	0	0	0	0
15-19	0	0	0	0	0	0	0	0
20-24	0	140	0	140	0	0	0	0
25-29	0	0	0	0	0	0	0	0
30-34	0	0	0	0	0	0	0	0
35-39	185	0	185	0	0	0	0	0
40-44	385	0	260	0	125	0	0	0
45-49	158	426	158	426	0	0	0	0
50-54	787	1936	582	1936	205	0	0	0
55-59	1288	1536	724	1332	284	204	280	0
60-64	1488	2211	901	1592	172	123	415	496
65-69	2801	601	2469	474	143	0	189	127
70-74	2381	1024	1616	698	269	198	496	128
75 up	5932	9816	5423	8086	120	855	389	875
Not Stated	0	0	0	0	0	0	0	0
TOTALS	15585	17814	12498	14808	1318	1380	1769	1626
SUM BY RACE	33399		27306		2698		3395	

Table 11-C-29
ALL PERSONS DISCHARGED FROM HOSPITALS ALIVE IN U.S., 1979
CARDIOMEGALY
ICD-9-CM 429.3

AGE	ALL RACES		WHITE		ALL OTHER		NOT STATED	
	MALE	FEMALE	MALE	FEMALE	MALE	FEMALE	MALE	FEMALE
0-4	0	0	0	0	0	0	0	0
5-9	0	0	0	0	0	0	0	0
10-14	0	0	0	0	0	0	0	0
15-19	0	0	0	0	0	0	0	0
20-24	0	113	0	0	0	113	0	0
25-29	0	213	0	0	0	0	0	213
30-34	0	0	0	0	0	0	0	0
35-39	275	0	275	0	0	0	0	0
40-44	204	366	204	366	0	0	0	0
45-49	0	0	0	0	0	0	0	0
50-54	483	679	483	679	0	0	0	0
55-59	624	0	624	0	0	0	0	0
60-64	700	0	700	0	0	0	0	0
65-69	492	553	492	553	0	0	0	0
70-74	513	0	513	0	0	0	0	0
75 up	938	1710	938	1710	0	0	0	0
Not Stated	0	0	0	0	0	0	0	0
TOTALS	4229	3634	4229	3308	0	113	0	213
SUM BY RACE	7863		7537		113		213	

Table 11-C-30
ALL PERSONS DISCHARGED FROM HOSPITALS ALIVE IN U.S., 1979
SUMMARY ALL AGES AND ALL CONDITIONS
SELECTED CONDITIONS FOR WHICH HEART TRANSPLANTATION IS INDICATED

<u>AGE</u>	<u>ALL RACES</u>		<u>WHITE</u>		<u>ALL OTHER</u>		<u>NOT STATED</u>	
	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>
0-4	7747	5690	6598	4456	994	546	155	688
5-9	1169	1041	1033	609	136	432	0	0
10-14	589	768	180	145	409	211	0	412
15-19	1494	3077	1020	1536	320	1067	154	474
20-24	1762	6884	1485	3280	103	3202	174	402
25-29	2391	4311	2002	2992	389	646	0	673
30-34	6235	8687	4348	6630	1212	1626	675	431
35-39	13748	9984	9885	6238	2243	2286	1620	1460
40-44	25343	13293	19823	9076	3048	3757	2472	460
45-49	51526	25136	41023	15558	4317	5967	6186	3611
50-54	74086	39907	60764	31811	6981	6094	6341	2002
55-59	97484	62774	80052	51344	7063	5791	9987	6021
60-64	126036	80786	104566	66195	9475	7373	11995	7218
65-69	150370	125180	121627	98870	11955	11100	16788	15210
70-74	159007	156717	127093	131083	10251	10610	21663	15024
75 up	352069	518007	287228	414646	24002	31823	40839	71538
Not Stated	0	0	0	0	0	0	0	0
TOTALS	1071056	1062242	868727	844469	82898	92531	119049	125624
SUM BY RACE	2133298		1713196		175429		244673	

Table 11-C-31
ALL PERSONS DISCHARGED FROM HOSPITALS ALIVE IN U.S., 1979
AGES 5-54 ONLY
SELECTED CONDITIONS FOR WHICH HEART TRANSPLANTATION IS INDICATED

<u>AGE</u>	<u>ALL RACES</u>		<u>WHITE</u>		<u>ALL OTHER</u>		<u>NOT STATED</u>	
	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>
0-4								
5-9	1169	1041	1033	609	136	432	0	0
10-14	589	768	180	145	409	211	0	412
15-19	1494	3077	1020	1536	320	1067	154	474
20-24	1762	6884	1485	3280	103	3202	174	402
25-29	2391	4311	2002	2992	389	646	0	673
30-34	6235	8687	4348	6630	1212	1626	675	431
35-39	13748	9984	9885	6238	2243	2286	1620	1460
40-44	25343	13293	19823	9076	3048	3757	2472	460
45-49	51526	25136	41023	15558	4317	5967	6186	3611
50-54	74086	39907	60764	31811	6981	6094	6341	2002
55-59								
60-64								
65-69								
70-74								
75 up								
Not Stated	0	0	0	0	0	0	0	0
TOTALS	178343	113088	141563	77875	19158	25288	17622	9925
SUM BY RACE	291431		219438		44446		27547	

Table 11-C-32
ALL PERSONS DISCHARGED FROM HOSPITALS ALIVE IN U.S., 1979
AGES 10-54 ONLY
SELECTED CONDITIONS FOR WHICH HEART TRANSPLANTATION IS INDICATED

<u>AGE</u>	<u>ALL RACES</u>		<u>WHITE</u>		<u>ALL OTHER</u>		<u>NOT STATED</u>	
	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>
0-4								
5-9								
10-14	589	768	180	145	409	211	0	412
15-19	1494	3077	1020	1536	320	1067	154	474
20-24	1762	6884	1485	3280	103	3202	174	402
25-29	2391	4311	2002	2992	389	646	0	673
30-34	6235	8687	4348	6630	1212	1626	675	431
35-39	13748	9984	9885	6238	2243	2286	1620	1460
40-44	25343	13293	19823	9076	3048	3757	2472	460
45-49	51526	25136	41023	15558	4317	5967	6186	3611
50-54	74086	39907	60764	31811	6981	6094	6341	2002
55-59								
60-64								
65-69								
70-74								
75 up								
Not Stated	0	0	0	0	0	0	0	0
TOTALS	177174	122047	140530	77266	19022	24856	17622	9925
SUM BY RACE	289221		217796		43878		27547	

Table 11-C-33
ALL PERSONS DISCHARGED FROM HOSPITALS ALIVE IN U.S., 1979
AGES 5-49 ONLY
SELECTED CONDITIONS FOR WHICH HEART TRANSPLANTATION IS INDICATED

<u>AGE</u>	<u>ALL RACES</u>		<u>WHITE</u>		<u>ALL OTHER</u>		<u>NOT STATED</u>	
	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>
0-4								
5-9	1169	1041	1033	609	136	432	0	0
10-14	589	768	180	145	409	211	0	412
15-19	1494	3077	1020	1536	320	1067	154	474
20-24	1762	6884	1485	3280	103	3202	174	402
25-29	2391	4311	2002	2992	389	646	0	673
30-34	6235	8687	4348	6630	1212	1626	675	431
35-39	13748	9984	9885	6238	2243	2286	1620	1460
40-44	25343	13293	19823	9076	3048	3757	2472	460
45-49	51526	25136	41023	15558	4317	5967	6186	3611
50-54								
55-59								
60-64								
65-69								
70-74								
75 up								
Not Stated	0	0	0	0	0	0	0	0
TOTALS	104257	73181	80799	46064	12177	19194	11281	7923
SUM BY RACE	177438		126863		31371		19204	

Table 11-C-34
ALL PERSONS DISCHARGED FROM HOSPITALS ALIVE IN U.S., 1979
AGES 10-49 ONLY
SELECTED CONDITIONS FOR WHICH HEART TRANSPLANTATION IS INDICATED

<u>AGE</u>	<u>ALL RACES</u>		<u>WHITE</u>		<u>ALL OTHER</u>		<u>NOT STATED</u>	
	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>
0-4								
5-9								
10-14	589	768	180	145	409	211	0	412
15-19	1494	3077	1020	1536	320	1067	154	474
20-24	1762	6884	1485	3280	103	3202	174	402
25-29	2391	4311	2002	2992	389	646	0	673
30-34	6235	8687	4348	6630	1212	1626	675	431
35-39	13748	9984	9885	6238	2243	2286	1620	1460
40-44	25343	13293	19823	9076	3048	3757	2472	460
45-49	51526	25136	41023	15558	4317	5967	6186	3611
50-54								
55-59								
60-64								
65-69								
70-74								
75 up								
Not Stated	0	0	0	0	0	0	0	0
TOTALS	103088	72140	79766	45455	12041	18762	11281	7923
SUM BY RACE	175228		125221		30803		19204	

APPENDIX 11-D

DETAILED MORBIDITY TABLES FOR 1978

Table 11-D-1
ALL PERSONS DISCHARGED FROM HOSPITALS ALIVE IN U.S., 1978
MALIGNANT NEOPLASM OF THE TRUNK
ICDA-8-REV. 171.1

AGE	ALL RACES		WHITE		ALL OTHER		NOT STATED	
	MALE	FEMALE	MALE	FEMALE	MALE	FEMALE	MALE	FEMALE
0-4	0	0	0	0	0	0	0	0
5-9	0	0	0	0	0	0	0	0
10-14	0	0	0	0	0	0	0	0
15-19	0	0	0	0	0	0	0	0
20-24	0	0	0	0	0	0	0	0
25-29	0	0	0	0	0	0	0	0
30-34	0	0	0	0	0	0	0	0
35-39	0	191	0	0	0	191	0	0
40-44	0	0	0	0	0	0	0	0
45-49	0	0	0	0	0	0	0	0
50-54	0	0	0	0	0	0	0	0
55-59	112	129	112	129	0	0	0	0
60-64	0	0	0	0	0	0	0	0
65-69	129	0	129	0	0	0	0	0
70-74	0	791	0	0	0	0	0	791
75 up	0	350	0	0	0	0	0	350
Not Stated	0	0	0	0	0	0	0	0
TOTALS	241	1461	241	129	0	191	0	1141
SUM BY RACE	1702		370		191		1141	

Table 11-D-2
ALL PERSONS DISCHARGED FROM HOSPITALS ALIVE IN U.S., 1978
DISEASES OF THE MITRAL VALVE SPECIFIED AS RHEUMATIC
ICDA-8-REV. 394

<u>AGE</u>	<u>ALL RACES</u>		<u>WHITE</u>		<u>ALL OTHER</u>		<u>NOT STATED</u>	
	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>
0-4	0	0	0	0	0	0	0	0
5-9	0	0	0	0	0	0	0	0
10-14	0	144	0	0	0	144	0	0
15-19	0	0	0	0	0	0	0	0
20-24	133	115	133	115	0	0	0	0
25-29	125	0	125	0	0	0	0	0
30-34	288	857	288	722	0	135	0	0
35-39	475	1725	475	1403	0	118	0	204
40-44	128	136	128	136	0	0	0	0
45-49	534	1655	534	1561	0	94	0	0
50-54	1085	1133	609	806	0	327	476	0
55-59	520	2160	520	2009	0	0	0	151
60-64	462	2163	462	1623	0	155	0	385
65-69	988	3248	988	2734	0	244	0	270
70-74	488	433	488	320	0	0	0	113
75 up	728	3238	509	1831	219	388	0	1019
Not Stated	0	0	0	0	0	0	0	0
TOTALS	5954	17007	5259	13260	219	1605	476	2142
SUM BY RACE	22961		18519		1824		2618	

Table 11-D-3
ALL PERSONS DISCHARGED FROM HOSPITALS ALIVE IN U.S., 1978
DISEASES OF THE MITRAL VALVE NOT SPECIFIED AS RHEUMATIC
ICDA-8-REV. 394.9

<u>AGE</u>	<u>ALL RACES</u>		<u>WHITE</u>		<u>ALL OTHER</u>		<u>NOT STATED</u>	
	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>
0-4	704	306	704	306	0	0	0	0
5-9	0	312	0	312	0	0	0	0
10-14	90	325	90	150	0	175	0	0
15-19	996	552	750	552	246	0	0	0
20-24	1053	1312	450	558	603	620	0	134
25-29	146	3812	0	3278	146	354	0	180
30-34	1712	2669	1350	2180	362	369	0	120
35-39	1233	3481	742	2850	491	201	0	430
40-44	1338	2979	1042	2232	138	309	158	438
45-49	1976	4320	1648	3246	0	225	328	849
50-54	1339	4689	831	4010	107	237	401	442
55-59	3506	3942	3506	2886	0	240	0	816
60-64	3226	3492	2480	2897	184	202	562	393
65-69	2168	3597	1518	2702	0	306	650	589
70-74	2531	3241	1313	2550	0	232	1218	459
75 up	3460	4383	2871	3343	238	551	351	489
Not Stated	0	0	0	0	0	0	0	0
TOTALS	25478	43422	19295	34052	2515	4021	3668	5339
SUM BY RACE	68890		53347		6536		9007	

Table 11-D-4
ALL PERSONS DISCHARGED FROM HOSPITALS ALIVE IN U.S., 1978
DISEASES OF THE AORTIC VALVE SPECIFIED AS RHEUMATIC
ICDA-8-REV. 395.0

<u>AGE</u>	<u>ALL RACES</u>		<u>WHITE</u>		<u>ALL OTHER</u>		<u>NOT STATED</u>	
	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>
0-4	0	0	0	0	0	0	0	0
5-9	0	0	0	0	0	0	0	0
10-14	0	0	0	0	0	0	0	0
15-19	0	0	0	0	0	0	0	0
20-24	140	0	0	0	140	0	0	0
25-29	125	0	125	0	0	0	0	0
30-34	0	0	0	0	0	0	0	0
35-39	0	136	0	136	0	0	0	0
40-44	226	473	226	203	0	0	0	270
45-49	121	378	121	378	0	0	0	0
50-54	525	756	525	756	0	0	0	0
55-59	569	189	569	0	0	106	0	83
60-64	214	477	214	477	0	0	0	0
65-69	801	255	266	255	369	0	176	0
70-74	364	664	364	492	0	0	0	172
75 up	310	514	310	380	0	0	0	134
Not Stated	0	0	0	0	0	0	0	0
TOTALS	3395	3842	2720	3077	499	106	176	659
SUM BY RACE	7237		5797		605		835	

Table 11-D-5
ALL PERSONS DISCHARGED FROM HOSPITALS ALIVE IN U.S., 1978
DISEASES OF THE AORTIC VALVE NOT SPECIFIED AS RHEUMATIC
ICDA-8-REV. 395.9

<u>AGE</u>	<u>ALL RACES</u>		<u>WHITE</u>		<u>ALL OTHER</u>		<u>NOT STATED</u>	
	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>
0-4	0	175	0	175	0	0	0	0
5-9	613	343	613	343	0	0	0	0
10-14	1974	286	1848	286	126	0	0	0
15-19	358	456	358	456	0	0	0	0
20-24	789	705	612	425	177	90	0	190
25-29	276	313	276	313	0	0	0	0
30-34	336	0	336	0	0	0	0	0
35-39	1742	561	822	429	920	132	0	0
40-44	1079	1044	1079	789	0	115	0	140
45-49	1660	200	1445	126	0	0	215	74
50-54	1413	1658	1051	1516	120	0	242	142
55-59	3505	1764	3355	1511	150	101	0	152
60-64	4810	2881	3635	2207	644	409	531	265
65-69	4118	2389	4118	2092	0	180	0	117
70-74	3273	5003	2877	3373	279	145	117	1485
75 up	5901	12483	3904	9635	975	1833	1022	1015
Not Stated	0	0	0	0	0	0	0	0
TOTALS	31847	30261	26329	23676	3391	3005	2127	3580
SUM BY RACE	62108		50005		6396		5707	

Table 11-D-6
ALL PERSONS DISCHARGED FROM HOSPITALS ALIVE IN U.S., 1978
DISEASES OF THE MITRAL AND AORTIC VALVE SPECIFIED AS RHEUMATIC
ICDA-8-REV. 396.0

	<u>ALL RACES</u>		<u>WHITE</u>		<u>ALL OTHER</u>		<u>NOT STATED</u>	
<u>AGE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>
0-4	0	0	0	0	0	0	0	0
5-9	0	0	0	0	0	0	0	0
10-14	0	0	0	0	0	0	0	0
15-19	0	0	0	0	0	0	0	0
20-24	470	0	470	0	0	0	0	0
25-29	149	315	149	147	0	168	0	0
30-34	0	446	0	295	0	151	0	0
35-39	105	0	105	0	0	0	0	0
40-44	0	298	0	298	0	0	0	0
45-49	492	481	289	481	203	0	0	0
50-54	610	809	295	809	0	0	315	0
55-59	295	1297	153	1157	142	0	0	140
60-64	1451	586	1196	586	0	0	255	0
65-69	665	216	494	0	0	0	171	216
70-74	0	890	0	381	0	211	0	298
75 up	312	758	312	507	0	0	0	251
Not Stated	0	0	0	0	0	0	0	0
TOTALS	4549	6096	3463	4661	345	530	741	905
SUM BY RACE	10645		8124		875		1646	

Table 11-D-7
ALL PERSONS DISCHARGED FROM HOSPITALS ALIVE IN U.S., 1978
DISEASES OF THE MITRAL AND AORTIC VALVES NOT SPECIFIED AS RHEUMATIC
ICDA-8-REV. 396.9

AGE	ALL RACES		WHITE		ALL OTHER		NOT STATED	
	MALE	FEMALE	MALE	FEMALE	MALE	FEMALE	MALE	FEMALE
0-4	0	0	0	0	0	0	0	0
5-9	0	0	0	0	0	0	0	0
10-14	228	0	228	0	0	0	0	0
15-19	0	275	0	0	0	275	0	0
20-24	0	128	0	0	0	128	0	0
25-29	0	0	0	0	0	0	0	0
30-34	0	0	0	0	0	0	0	0
35-39	0	320	0	320	0	0	0	0
40-44	0	133	0	133	0	0	0	0
45-49	165	0	0	0	165	0	0	0
50-54	0	766	0	766	0	0	0	0
55-59	142	277	0	277	142	0	0	0
60-64	734	356	734	356	0	0	0	0
65-69	420	317	273	172	147	0	0	145
70-74	617	768	617	768	0	0	0	0
75 up	834	1137	488	298	364	341	0	498
Not Stated	0	0	0	0	0	0	0	0
TOTALS	3140	4477	2340	3090	800	744	0	643
SUM BY RACE	7617		5430		1544		643	

Table 11-D-8
ALL PERSONS DISCHARGED FROM HOSPITALS ALIVE IN U.S., 1978
OTHER HEART DISEASE SPECIFIED AS RHEUMATIC
ICDA-8-REV. 398

<u>AGE</u>	<u>ALL RACES</u>		<u>WHITE</u>		<u>ALL OTHER</u>		<u>NOT STATED</u>	
	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>
0-4	138	99	138	99	0	0	0	0
5-9	0	301	0	163	0	0	0	138
10-14	0	0	0	0	0	0	0	0
15-19	283	806	283	0	0	662	0	144
20-24	267	1987	267	1069	0	731	0	187
25-29	149	732	149	293	0	146	0	293
30-34	303	1295	135	978	0	134	168	183
35-39	273	1535	273	950	0	301	0	284
40-44	304	722	304	146	0	145	0	431
45-49	129	1765	0	1635	0	0	129	130
50-54	1605	2709	922	1748	0	0	683	961
55-59	1003	2088	1003	1643	0	134	0	311
60-64	1522	1478	1254	1478	0	0	268	0
65-69	853	2708	330	2708	0	0	523	0
70-74	871	2122	871	2047	0	0	0	75
75 up	1024	1516	637	756	0	0	387	760
Not Stated	0	0	0	0	0	0	0	0
TOTALS	8724	21863	6566	15713	0	2253	2158	3897
SUM BY RACE	30587		22279		2253		6055	

Table 11-D-9
ALL PERSONS DISCHARGED FROM HOSPITALS ALIVE IN U.S., 1978
CHRONIC ISCHEMIC HEART DISEASE (WITH HYPERTENSIVE DISEASE)
ICDA-8-REV. 412.0

AGE	ALL RACES		WHITE		ALL OTHER		NOT STATED	
	MALE	FEMALE	MALE	FEMALE	MALE	FEMALE	MALE	FEMALE
0-4	227	386	227	386	0	0	0	0
5-9	178	311	178	148	0	163	0	0
10-14	0	0	0	0	0	0	0	0
15-19	0	172	0	0	0	172	0	0
20-24	180	167	180	167	0	0	0	0
25-29	815	377	684	133	131	0	0	244
30-34	1059	1306	535	472	315	834	209	0
35-39	3190	2412	1938	671	797	1741	455	0
40-44	5503	6237	3529	3753	1816	2190	158	294
45-49	7878	8695	4843	4857	2689	2304	346	1534
50-54	20396	17661	15610	10694	2219	5424	2567	1543
55-59	27681	24824	19820	18233	5272	4486	2589	2105
60-64	27866	25719	23265	19213	2873	4561	1728	1945
65-69	33375	41248	24889	31838	4652	5749	3834	3661
70-74	33305	53058	26193	42265	3525	5278	3587	5515
75 up	47322	126830	35718	97880	5624	12720	5980	16230
Not Stated	0	0	0	0	0	0	0	0
TOTALS	208975	309403	157609	230710	29913	45622	21453	33071
SUM BY RACE	518378		388319		75535		54524	

Table 11-D-10
ALL PERSONS DISCHARGED FROM HOSPITALS ALIVE IN U.S., 1978
CHRONIC ISCHEMIC HEART DISEASE WITHOUT MENTION OF HYPERTENSION
ICDA-8-REV. 412.9

<u>AGE</u>	<u>ALL RACES</u>		<u>WHITE</u>		<u>ALL OTHER</u>		<u>NOT STATED</u>	
	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>
0-4	3308	1916	2932	1346	231	174	145	396
5-9	188	495	188	226	0	0	0	269
10-14	144	0	144	0	0	0	0	0
15-19	592	134	592	134	0	0	0	0
20-24	580	506	580	506	0	0	0	0
25-29	526	539	123	539	403	0	0	0
30-34	4406	1105	3265	596	225	509	916	0
35-39	13418	4095	12071	1807	609	1337	738	951
40-44	27773	6483	23614	5068	1658	883	2501	532
45-49	52952	13215	46634	10133	2776	925	3542	2157
50-54	87977	28990	76978	21984	3398	2376	7601	4630
55-59	106998	43623	93260	36375	4914	3075	8824	4173
60-64	123561	65893	103848	55149	6009	3672	13704	7072
65-69	129348	87992	111666	72752	5670	4150	12012	11090
70-74	125061	102609	102688	84851	6184	5630	16189	12128
75 up	249090	332356	202473	276603	11946	18022	34671	37731
Not Stated	0	0	0	0	0	0	0	0
TOTALS	925922	689951	781056	568069	44023	40753	100843	81129
SUM BY RACE	1615873		1349125		84776		181972	

Table 11-D-11
ALL PERSONS DISCHARGED FROM HOSPITALS ALIVE IN U.S., 1978
ACUTE MYOCARDITIS
ICDA-8-REV. 422.0

AGE	ALL RACES		WHITE		ALL OTHER		NOT STATED	
	MALE	FEMALE	MALE	FEMALE	MALE	FEMALE	MALE	FEMALE
0-4	0	0	0	0	0	0	0	0
5-9	0	0	0	0	0	0	0	0
10-14	119	0	119	0	0	0	0	0
15-19	0	230	0	0	0	230	0	0
20-24	198	0	198	0	0	0	0	0
25-29	0	427	0	191	0	236	0	0
30-34	0	0	0	0	0	0	0	0
35-39	259	0	0	0	259	0	0	0
40-44	0	151	0	151	0	0	0	0
45-49	0	0	0	0	0	0	0	0
50-54	0	141	0	0	0	141	0	0
55-59	151	0	151	0	0	0	0	0
60-64	134	135	134	135	0	0	0	0
65-69	0	0	0	0	0	0	0	0
70-74	0	0	0	0	0	0	0	0
75 up	488	0	264	0	224	0	0	0
Not Stated	0	0	0	0	0	0	0	0
TOTALS	1349	1084	866	477	483	607	0	0
SUM BY RACE	2433		1343		1090		0	

Table 11-D-12
ALL PERSONS DISCHARGED FROM HOSPITALS ALIVE IN U.S., 1978
CHRONIC DISEASE OF ENDOCARDIUM (OF AORTIC VALVE, NONRHEUMATIC)
ICDA-8-REV. 424.1

<u>AGE</u>	<u>ALL RACES</u>		<u>WHITE</u>		<u>ALL OTHER</u>		<u>NOT STATED</u>	
	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>
0-4	0	0	0	0	0	0	0	0
5-9	0	0	0	0	0	0	0	0
10-14	0	0	0	0	0	0	0	0
15-19	0	0	0	0	0	0	0	0
20-24	0	0	0	0	0	0	0	0
25-29	0	0	0	0	0	0	0	0
30-34	0	0	0	0	0	0	0	0
35-39	0	0	0	0	0	0	0	0
40-44	0	0	0	0	0	0	0	0
45-49	0	0	0	0	0	0	0	0
50-54	569	0	569	0	0	0	0	0
55-59	0	0	0	0	0	0	0	0
60-64	0	0	0	0	0	0	0	0
65-69	569	0	0	0	569	0	0	0
70-74	0	0	0	0	0	0	0	0
75 up	0	569	0	569	0	0	0	0
Not Stated	0	0	0	0	0	0	0	0
TOTALS	1138	569	569	569	569	0	0	0
SUM BY RACE	1707		1138		569		0	

Table 11-D-13
ALL PERSONS DISCHARGED FROM HOSPITALS ALIVE IN U.S., 1978
CARDIOMYOPATHY
ICDA-8-REV. 425.0

<u>AGE</u>	<u>ALL RACES</u>		<u>WHITE</u>		<u>ALL OTHER</u>		<u>NOT STATED</u>	
	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>
0-4	180	962	180	839	0	123	0	0
5-9	402	263	190	263	212	0	0	0
10-14	0	0	0	0	0	0	0	0
15-19	0	135	0	0	0	135	0	0
20-24	190	285	190	0	0	185	0	0
25-29	1028	651	578	651	450	0	0	0
30-34	1777	144	861	144	610	0	306	0
35-39	2174	723	1640	382	534	341	0	0
40-44	1486	1470	1486	968	0	40	0	462
45-49	2309	2367	1062	973	514	986	733	408
50-54	5048	2725	4056	1952	732	773	260	0
55-59	4841	2246	3267	1938	1433	139	141	169
60-64	2796	2772	2187	2507	378	265	231	0
65-69	4002	1887	3507	1887	306	0	289	0
70-74	2149	2506	1327	1917	822	154	0	435
75 up	1963	1713	1777	1394	186	0	0	319
Not Stated	0	0	0	0	0	0	0	0
TOTALS	30345	20849	22308	15815	6177	3241	1860	1793
SUM BY RACE	51194		38123		9418		3653	

Table 11-D-14
ALL PERSONS DISCHARGED FROM HOSPITALS ALIVE IN U.S., 1978
CONGESTIVE HEART FAILURE
ICDA-8-REV. 427.0

<u>AGE</u>	<u>ALL RACES</u>		<u>WHITE</u>		<u>ALL OTHER</u>		<u>NOT STATED</u>	
	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>
0-4	3395	3226	2065	2517	698	529	632	180
5-9	151	0	0	0	151	0	0	0
10-14	81	220	81	220	0	0	0	0
15-19	270	327	270	327	0	0	0	0
20-24	420	604	297	356	123	248	0	0
25-29	970	267	401	135	387	0	182	132
30-34	694	586	102	334	383	121	209	131
35-39	1659	1334	752	339	724	995	183	0
40-44	1613	1111	914	661	393	325	306	125
45-49	2707	3300	1464	2195	768	1105	475	0
50-54	7356	8521	5740	4363	755	2161	861	997
55-59	17426	13711	12805	9294	2767	2165	1854	2252
60-64	22413	16976	15911	12920	2974	3031	3528	1025
65-69	29938	22568	24457	18611	2384	2329	3097	1628
70-74	44458	33950	33852	26215	4220	3361	6386	4374
75 up	89277	113318	66860	890455	10088	9067	12329	15206
Not Stated	0	0	0	0	0	0	0	0
TOTALS	222828	220019	165971	168532	26815	25437	30042	26050
SUM BY RACE	442847		334503		52252		56092	

Table 11-D-15
ALL PERSONS DISCHARGED FROM HOSPITALS ALIVE IN U.S., 1978
LEFT VENTRICULAR FAILURE
ICDA-8-REV. 427.1

AGE	ALL RACES		WHITE		ALL OTHER		NOT STATED	
	MALE	FEMALE	MALE	FEMALE	MALE	FEMALE	MALE	FEMALE
0-4	0	0	0	0	0	0	0	0
5-9	0	0	0	0	0	0	0	0
10-14	0	0	0	0	0	0	0	0
15-19	0	0	0	0	0	0	0	0
20-24	0	0	0	0	0	0	0	0
25-29	0	0	0	0	0	0	0	0
30-34	187	0	0	0	0	0	187	0
35-39	0	137	0	0	0	137	0	0
40-44	0	373	0	373	0	0	0	0
45-49	133	0	133	0	0	0	0	0
50-54	385	429	385	184	0	0	0	245
55-59	658	310	125	310	0	0	533	0
60-64	1155	170	1155	0	0	170	0	0
65-69	448	347	228	347	220	0	0	0
70-74	882	445	691	445	0	0	191	0
75 up	1626	2022	1626	1717	0	0	0	305
Not Stated	0	0	0	0	0	0	0	0
TOTALS	5474	4233	4343	3376	220	307	911	550
SUM BY RACE	9707		7719		527		1461	

Table 11-D-16
ALL PERSONS DISCHARGED FROM HOSPITALS ALIVE IN U.S., 1978
OTHER MYOCARDIAL INSUFFICIENCY
ICDA-8-REV. 428.0

<u>AGE</u>	<u>ALL RACES</u>		<u>WHITE</u>		<u>ALL OTHER</u>		<u>NOT STATED</u>	
	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>
0-4	0	0	0	0	0	0	0	0
5-9	58	0	58	0	0	0	0	0
10-14	192	0	192	0	0	0	0	0
15-19	307	92	307	92	0	0	0	0
20-24	422	0	422	0	0	0	0	0
25-29	0	0	0	0	0	0	0	0
30-34	735	0	302	0	249	0	184	0
35-39	605	252	456	252	149	0	0	0
40-44	392	289	392	0	0	126	0	163
45-49	561	171	282	66	139	0	140	105
50-54	1735	1142	1247	1004	0	0	488	138
55-59	743	1958	743	1958	0	0	0	0
60-64	308	756	308	756	0	0	0	0
65-69	1725	1505	1491	1360	0	0	234	145
70-74	2299	1568	1932	1256	151	167	216	145
75 up	3481	4081	2571	3807	354	0	556	274
Not Stated	0	0	0	0	0	0	0	0
TOTALS	13563	11814	10703	10551	1042	293	1818	970
SUM BY RACE	25377		21254		1335		2788	

Table 11-D-17
ALL PERSONS DISCHARGED FROM HOSPITALS ALIVE IN U.S., 1978
ILL-DEFINED HEART DISEASE (OTHER AND UNSPECIFIED)
ICDA-8-REV. 429.9

<u>AGE</u>	<u>ALL RACES</u>		<u>WHITE</u>		<u>ALL OTHER</u>		<u>NOT STATED</u>	
	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>
0-4	0	0	0	0	0	0	0	0
5-9	0	291	0	159	0	132	0	0
10-14	153	378	153	179	0	199	0	0
15-19	0	142	0	142	0	0	0	0
20-24	0	241	0	241	0	0	0	0
25-29	262	0	262	0	0	0	0	0
30-34	0	249	0	249	0	0	0	0
35-39	230	170	0	0	230	170	0	0
40-44	373	235	373	0	0	235	0	0
45-49	1428	542	1428	413	0	0	0	129
50-54	864	1779	659	962	205	817	0	0
55-59	492	1323	492	1323	0	0	0	0
60-64	1050	879	507	879	143	0	400	0
65-69	1711	751	1311	425	232	0	168	326
70-74	3082	1721	1517	1022	1113	123	452	576
75 up	3358	5253	2148	3626	575	213	635	1414
Not Stated	0	0	0	0	0	0	0	0
TOTALS	13003	13954	8850	9620	2498	1889	1655	2445
SUM BY RACE	26957		18470		4387		4100	

Table 11-D-18
ALL PERSONS DISCHARGED FROM HOSPITALS ALIVE IN U.S., 1978
SUMMARY ALL AGES AND ALL CONDITIONS
SELECTED CONDITIONS FOR WHICH HEART TRANSPLANTATION IS INDICATED

	<u>ALL RACES</u>		<u>WHITE</u>		<u>ALL OTHER</u>		<u>NOT STATED</u>	
<u>AGE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>
0-4	7952	7070	6246	5668	929	826	777	576
5-9	1590	2316	1227	1614	363	295	0	407
10-14	2981	1353	2855	835	126	518	0	0
15-19	2806	3321	2560	1703	246	1474	0	144
20-24	4842	6050	3799	3437	1043	2102	0	511
25-29	4571	7433	2872	5680	1517	904	182	849
30-34	11497	8657	7174	5970	2144	2253	2179	434
35-39	25363	17072	19274	9539	4713	5664	1376	1869
40-44	40215	22134	33087	14911	4005	4368	3123	2855
45-49	73045	37089	59883	26064	7254	5639	5908	5386
50-54	130907	73908	109477	52554	7536	12256	13894	9098
55-59	168642	99841	139881	79043	14820	10446	13941	10352
60-64	191702	124733	157290	101183	13205	12465	21207	11085
65-69	211258	169028	175665	137883	14539	12958	21054	18187
70-74	219380	209769	174730	167902	16294	15301	28356	26566
75 up	409174	610521	322468	491391	30775	43135	55931	75995
Not Stated	0	0	0	0	0	0	0	0
TOTALS	1505925	1400295	1218488	1105377	119509	130604	167928	164314
SUM BY RACE	29062320		2323865		250113		332242	

Table 11-D-19
ALL PERSONS DISCHARGED FROM HOSPITALS ALIVE IN U.S., 1978
AGES 5-54 ONLY
SELECTED CONDITIONS FOR WHICH HEART TRANSPLANTATION IS INDICATED

<u>AGE</u>	<u>ALL RACES</u>		<u>WHITE</u>		<u>ALL OTHER</u>		<u>NOT STATED</u>	
	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>
0-4								
5-9	1590	2316	1227	1614	363	295	0	407
10-14	2981	1353	2855	835	126	518	0	0
15-19	2806	3321	2560	1703	246	1474	0	144
20-24	4842	6050	3799	3437	1043	2102	0	511
25-29	4571	7433	2872	5680	1517	904	182	849
30-34	11497	8657	7174	5970	2144	2253	2179	434
35-39	25363	17072	19274	9539	4713	5664	1376	1869
40-44	40215	22134	33087	14911	4005	4368	3123	2855
45-49	73045	37089	59883	26064	7254	5639	5908	5386
50-54	130907	73908	109477	52554	7536	12256	13894	9098
55-59								
60-64								
65-69								
70-74								
75 up								
Not Stated	0	0	0	0	0	0	0	0
TOTALS	297817	179333	242208	122307	28947	35473	26662	21553
SUM BY RACE	477150		364515		64420		48215	

Table 11-D-20
ALL PERSONS DISCHARGED FROM HOSPITALS ALIVE IN U.S., 1978
AGES 10-54 ONLY
SELECTED CONDITIONS FOR WHICH HEART TRANSPLANTATION IS INDICATED

<u>AGE</u>	<u>ALL RACES</u>		<u>WHITE</u>		<u>ALL OTHER</u>		<u>NOT STATED</u>	
	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>
0-4								
5-9								
10-14	2981	1353	2855	835	126	518	0	0
15-19	2806	3321	2560	1703	246	1474	0	144
20-24	4842	6050	3799	3437	1043	2102	0	511
25-29	4571	7433	2872	5680	1517	904	182	849
30-34	11497	8657	7174	5970	2144	2253	2179	434
35-39	25363	17072	19274	9539	4713	5664	1376	1869
40-44	40215	22134	33087	14911	4005	4368	3123	2855
45-49	73045	37089	59883	26064	7254	5639	5908	5386
50-54	130907	73908	109477	52554	7536	12256	13894	9098
55-59								
60-64								
65-69								
70-74								
75 up								
Not Stated	0	0	0	0	0	0	0	0
TOTALS	296227	177017	240981	120693	28584	35178	26662	21146
SUM BY RACE	473244		361674		63762		47808	

Table 11-D-21
ALL PERSONS DISCHARGED FROM HOSPITALS ALIVE IN U.S., 1978
AGES 5-49 ONLY
SELECTED CONDITIONS FOR WHICH HEART TRANSPLANTATION IS INDICATED

<u>AGE</u>	<u>ALL RACES</u>		<u>WHITE</u>		<u>ALL OTHER</u>		<u>NOT STATED</u>	
	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>
0-4								
5-9	1590	2316	1227	1614	363	295	0	407
10-14	2981	1353	2855	835	126	518	0	0
15-19	2806	3321	2560	1703	246	1474	0	144
20-24	4842	6050	3799	3437	1043	2102	0	511
25-29	4571	7433	2872	5680	1517	904	182	849
30-34	11497	8657	7174	5970	2144	2253	2179	434
35-39	25363	17072	19274	9539	4713	5664	1376	1869
40-44	40215	22134	33087	14911	4005	4368	3123	2855
45-49	73045	37089	59883	26064	7254	5639	5908	5386
50-54								
55-59								
60-64								
65-69								
70-74								
75 up								
Not Stated	0	0	0	0	0	0	0	0
TOTALS	166910	105425	132731	69753	21411	23217	12768	12455
SUM BY RACE	272335		202484		44628		25223	

Table 11-D-22
ALL PERSONS DISCHARGED FROM HOSPITALS ALIVE IN U.S., 1978
AGES 10-49 ONLY
SELECTED CONDITIONS FOR WHICH HEART TRANSPLANTATION IS INDICATED

<u>AGE</u>	<u>ALL RACES</u>		<u>WHITE</u>		<u>ALL OTHER</u>		<u>NOT STATED</u>	
	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>
0-4								
5-9								
10-14	2981	1353	2855	835	126	518	0	0
15-19	2806	3321	2560	1703	246	1474	0	144
20-24	4842	6050	3799	3437	1043	2102	0	511
25-29	4571	7433	2872	5680	1517	904	182	849
30-34	11497	8657	7174	5970	2144	2253	2179	434
35-39	25363	17072	19274	9539	4713	5664	1376	1869
40-44	40215	22134	33087	14911	4005	4368	3123	2855
45-49	73045	37089	59883	26064	7254	5639	5908	5386
50-54								
55-59								
60-64								
65-69								
70-74								
75 up								
Not Stated	0	0	0	0	0	0	0	0
TOTALS	165320	103109	131504	68139	21048	22922	12768	12048
SUM BY RACE	268429		199643		43970		24816	

APPENDIX 11-E

DETAILED MORBIDITY TABLES FOR 1977

Table 11-E-1
ALL PERSONS DISCHARGED FROM HOSPITALS ALIVE IN U.S., 1977
MALIGNANT NEOPLASM OF THE TRUNK
ICDA-8-REV. 171.1

<u>AGE</u>	<u>ALL RACES</u>		<u>WHITE</u>		<u>ALL OTHER</u>		<u>NOT STATED</u>	
	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>
0-4	0	0	0	0	0	0	0	0
5-9	166	0	166	0	0	0	0	0
10-14	0	0	0	0	0	0	0	0
15-19	0	0	0	0	0	0	0	0
20-24	0	0	0	0	0	0	0	0
25-29	305	0	305	0	0	0	0	0
30-34	197	0	0	0	0	0	197	0
35-39	129	144	129	144	0	0	0	0
40-44	0	0	0	0	0	0	0	0
45-49	0	539	0	539	0	0	0	0
50-54	0	0	0	0	0	0	0	0
55-59	0	0	0	0	0	0	0	0
60-64	0	0	0	0	0	0	0	0
65-69	0	341	0	341	0	0	0	0
70-74	185	885	185	0	0	0	0	885
75 up	126	311	126	311	0	0	0	0
Not Stated	0	0	0	0	0	0	0	0
TOTALS	1108	2220	911	1335	0	0	197	885
SUM BY RACE	3328		2246		0		1082	

Table 11-E-2
ALL PERSONS DISCHARGED FROM HOSPITALS ALIVE IN U.S., 1977
DISEASES OF THE MITRAL VALVE SPECIFIED AS RHEUMATIC
ICDA-8-REV. 394

<u>AGE</u>	<u>ALL RACES</u>		<u>WHITE</u>		<u>ALL OTHER</u>		<u>NOT STATED</u>	
	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>
0-4	0	0	0	0	0	0	0	0
5-9	0	0	0	0	0	0	0	0
10-14	0	0	0	0	0	0	0	0
15-19	138	0	138	0	0	0	0	0
20-24	138	255	138	255	0	0	0	0
25-29	124	399	0	399	0	0	124	0
30-34	564	363	564	363	0	0	0	0
35-39	287	795	0	486	287	309	0	0
40-44	126	1357	0	988	0	369	126	0
45-49	566	1087	566	1087	0	0	0	0
50-54	1067	2079	698	1862	171	0	198	217
55-59	866	2971	699	2655	167	0	0	316
60-64	894	1885	769	1760	0	0	125	125
65-69	471	1338	254	1106	0	0	217	232
70-74	931	1180	931	1006	0	0	0	174
75 up	0	1205	0	1076	0	0	0	129
Not Stated	0	0	0	0	0	0	0	0
TOTALS	6172	14914	4757	13043	625	678	790	1193
SUM BY RACE	21086		17800		1303		1983	

Table 11-E-3
ALL PERSONS DISCHARGED FROM HOSPITALS ALIVE IN U.S., 1977
DISEASES OF THE MITRAL VALVE NOT SPECIFIED AS RHEUMATIC
ICDA-8-REV. 394.9

<u>AGE</u>	<u>ALL RACES</u>		<u>WHITE</u>		<u>ALL OTHER</u>		<u>NOT STATED</u>	
	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>
0-4	0	281	0	281	0	0	0	0
5-9	241	100	241	100	0	0	0	0
10-14	319	349	142	349	0	0	177	0
15-19	0	504	0	360	0	144	0	0
20-24	421	1519	421	1389	0	130	0	0
25-29	163	2740	163	2057	0	247	0	436
30-34	1019	1259	1019	899	0	0	0	360
35-39	2455	3115	2163	2594	131	229	161	292
40-44	697	2039	382	1896	0	0	315	143
45-49	1610	3798	1437	2720	0	482	173	596
50-54	2254	5093	1666	3815	195	208	393	1070
55-59	3324	3696	2979	2566	345	214	0	916
60-64	3269	3460	2412	3064	500	0	357	396
65-69	1796	3185	1591	2181	0	320	205	684
70-74	1697	2482	1549	2030	148	295	0	157
75 up	1916	2724	677	2285	452	127	787	312
Not Stated	0	0	0	0	0	0	0	0
TOTALS	21181	36344	16842	28586	1771	2396	2568	5362
SUM BY RACE	57525		45428		4167		7930	

Table 11-E-4
ALL PERSONS DISCHARGED FROM HOSPITALS ALIVE IN U.S., 1977
DISEASES OF THE AORTIC VALVE SPECIFIED AS RHEUMATIC
ICDA-8-REV. 395.0

<u>AGE</u>	<u>ALL RACES</u>		<u>WHITE</u>		<u>ALL OTHER</u>		<u>NOT STATED</u>	
	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>
0-4	0	200	0	200	0	0	0	0
5-9	0	0	0	0	0	0	0	0
10-14	0	0	0	0	0	0	0	0
15-19	0	0	0	0	0	0	0	0
20-24	0	0	0	0	0	0	0	0
25-29	0	147	0	147	0	0	0	0
30-34	0	0	0	0	0	0	0	0
35-39	0	0	0	0	0	0	0	0
40-44	164	196	164	0	0	196	0	0
45-49	176	125	0	125	0	0	176	0
50-54	326	132	131	132	195	0	0	0
55-59	181	910	181	552	0	358	0	0
60-64	0	206	0	206	0	0	0	0
65-69	379	0	119	0	0	0	260	0
70-74	0	316	0	316	0	0	0	0
75 up	0	0	0	0	0	0	0	0
Not Stated	0	0	0	0	0	0	0	0
TOTALS	1226	2232	595	1678	195	554	436	0
SUM BY RACE	3458		2273		749		436	

Table 11-E-5
ALL PERSONS DISCHARGED FROM HOSPITALS ALIVE IN U.S., 1977
DISEASES OF THE AORTIC VALVE NOT SPECIFIED AS RHEUMATIC
ICDA-8-REV. 395.9

AGE	ALL RACES		WHITE		ALL OTHER		NOT STATED	
	MALE	FEMALE	MALE	FEMALE	MALE	FEMALE	MALE	FEMALE
0-4	469	152	469	152	0	0	0	0
5-9	179	0	179	0	0	0	0	0
10-14	1249	320	1160	196	134	124	0	0
15-19	646	239	272	75	189	164	185	0
20-24	417	417	246	417	171	0	0	0
25-29	480	0	108	0	372	0	0	0
30-34	421	372	421	235	0	0	0	137
35-39	1547	428	910	187	463	241	174	0
40-44	1777	2360	1777	1253	0	694	0	413
45-49	897	1161	897	963	0	198	0	0
50-54	1721	437	1236	0	0	245	485	192
55-59	2266	1416	1896	1162	206	254	164	0
60-64	5147	1886	4701	1736	87	0	359	150
65-69	6092	3077	4612	2281	1480	0	0	796
70-74	4447	4396	3458	3455	161	941	828	0
75 up	6507	11657	4916	8259	594	1588	997	1810
Not Stated	0	0	0	0	0	0	0	0
TOTALS	34307	28318	27258	20371	3857	4449	3192	3498
SUM BY RACE	62625		47629		8306		6690	

Table 11-E-6
ALL PERSONS DISCHARGED FROM HOSPITALS ALIVE IN U.S., 1977
DISEASES OF THE MITRAL AND AORTIC VALVE SPECIFIED AS RHEUMATIC
ICDA-8-REV. 396.0

AGE	ALL RACES		WHITE		ALL OTHER		NOT STATED	
	MALE	FEMALE	MALE	FEMALE	MALE	FEMALE	MALE	FEMALE
0-4	157	0	0	0	157	0	0	0
5-9	0	0	0	0	0	0	0	0
10-14	141	0	141	0	0	0	0	0
15-19	0	0	0	0	0	0	0	0
20-24	304	218	147	218	157	0	0	0
25-29	0	207	0	207	0	0	0	0
30-34	175	295	175	295	0	0	0	0
35-39	0	94	0	0	0	94	0	0
40-44	340	122	162	0	0	0	178	122
45-49	0	807	0	807	0	0	0	0
50-54	295	127	137	127	0	0	158	0
55-59	270	869	270	758	0	0	0	111
60-64	600	495	600	495	0	0	0	0
65-69	237	500	237	500	0	0	0	0
70-74	670	800	670	633	0	0	0	167
75 up	289	412	289	252	0	0	0	160
Not Stated	0	0	0	0	0	0	0	0
TOTALS	3478	4946	2828	4292	314	94	336	560
SUM BY RACE	8424		7120		408		896	

Table 11-E-7
ALL PERSONS DISCHARGED FROM HOSPITALS ALIVE IN U.S., 1977
DISEASES OF THE MITRAL AND AORTIC VALVES NOT SPECIFIED AS RHEUMATIC
ICDA-8-REV. 396.9

AGE	ALL RACES		WHITE		ALL OTHER		NOT STATED	
	MALE	FEMALE	MALE	FEMALE	MALE	FEMALE	MALE	FEMALE
0-4	0	0	0	0	0	0	0	0
5-9	0	0	0	0	0	0	0	0
10-14	0	0	0	0	0	0	0	0
15-19	173	242	173	0	0	242	0	0
20-24	131	654	131	654	0	0	0	0
25-29	0	0	0	0	0	0	0	0
30-34	0	140	0	140	0	0	0	0
35-39	0	165	0	165	0	0	0	0
40-44	414	145	123	145	291	0	0	0
45-49	135	162	135	162	0	0	0	0
50-54	160	391	160	204	0	0	0	187
55-59	241	334	241	334	0	0	0	0
60-64	0	338	0	338	0	0	0	0
65-69	363	556	363	556	0	0	0	0
70-74	558	366	558	366	0	0	0	0
75 up	153	2609	153	2188	0	172	0	249
Not Stated	0	0	0	0	0	0	0	0
TOTALS	2328	6102	2037	5252	291	414	0	436
SUM BY RACE	8430		7289		705		436	

Table 11-E-8
ALL PERSONS DISCHARGED FROM HOSPITALS ALIVE IN U.S., 1977
OTHER HEART DISEASE SPECIFIED AS RHEUMATIC
ICDA-8-REV. 398

	<u>ALL RACES</u>		<u>WHITE</u>		<u>ALL OTHER</u>		<u>NOT STATED</u>	
<u>AGE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>
0-4	0	0	0	0	0	0	0	0
5-9	0	0	0	0	0	0	0	0
10-14	0	856	0	856	0	0	0	0
15-19	0	88	0	0	0	88	0	0
20-24	351	749	351	510	0	239	0	0
25-29	569	1074	378	571	191	374	0	129
30-34	187	1104	187	1045	0	0	0	59
35-39	0	1654	0	1654	0	0	0	0
40-44	1074	2007	869	1344	0	280	205	383
45-49	916	2195	567	1265	216	169	133	761
50-54	808	2275	643	1806	165	469	0	0
55-59	1789	2132	617	1963	0	0	1172	169
60-64	841	3298	422	2776	138	0	281	522
65-69	998	3425	998	2945	0	0	0	480
70-74	762	2892	618	1958	0	0	144	934
75 up	385	968	268	968	0	0	117	0
Not Stated	0	0	0	0	0	0	0	0
TOTALS	8680	24717	5918	19661	710	1619	2052	3437
SUM BY RACE	33397		25579		2329		5489	

Table 11-E-9
ALL PERSONS DISCHARGED FROM HOSPITALS ALIVE IN U.S., 1977
CHRONIC ISCHEMIC HEART DISEASE (WITH HYPERTENSIVE DISEASE)
ICDA-8-REV. 412.0

AGE	ALL RACES		WHITE		ALL OTHER		NOT STATED	
	MALE	FEMALE	MALE	FEMALE	MALE	FEMALE	MALE	FEMALE
0-4	0	837	0	707	0	130	0	0
5-9	0	0	0	0	0	0	0	0
10-14	298	0	298	0	0	0	0	0
15-19	211	0	211	0	0	0	0	0
20-24	0	395	0	150	0	235	0	0
25-29	691	1007	564	1007	0	0	127	0
30-34	1017	859	1017	725	0	0	0	134
35-39	2476	1769	1164	159	1172	1357	140	253
40-44	6600	5902	4548	3026	847	1951	1205	925
45-49	10825	7555	8447	4348	1060	2799	1318	408
50-54	20104	17096	15551	10863	2201	4187	2352	2046
55-59	29199	23376	22148	18426	4069	3208	2982	1742
60-64	32888	29626	26737	23404	3852	2920	2299	3302
65-69	36802	46031	29433	36243	3451	5301	3918	4487
70-74	35618	47190	26719	37601	4533	5410	4366	4179
75 up	47083	133523	35605	105007	4906	10351	6572	18165
Not Stated	0	0	0	0	0	0	0	0
TOTALS	223812	315156	172442	241666	26091	37849	25279	35641
SUM BY RACE	538968		414108		63940		60920	

Table 11-E-10
ALL PERSONS DISCHARGED FROM HOSPITALS ALIVE IN U.S., 1977
CHRONIC ISCHEMIC HEART DISEASE WITHOUT MENTION OF HYPERTENSION
ICDA-8-REV. 412.9

<u>AGE</u>	<u>ALL RACES</u>		<u>WHITE</u>		<u>ALL OTHER</u>		<u>NOT STATED</u>	
	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>
0-4	2017	1228	1637	1017	380	211	0	0
5-9	237	149	237	0	0	149	0	0
10-14	0	0	0	0	0	0	0	0
15-19	0	127	0	127	0	0	0	0
20-24	423	67	139	67	0	0	284	0
25-29	2352	914	1652	570	299	344	401	0
30-34	3611	1735	2729	1421	218	314	664	0
35-39	11595	3755	9730	2796	687	959	1178	0
40-44	33664	8482	29965	5245	920	1856	2779	1381
45-49	53639	14128	45939	12444	2650	780	5050	904
50-54	91356	35992	79353	28949	2992	2398	9011	4645
55-59	105618	51560	89380	44621	4744	1252	11494	5687
60-64	119808	62923	106760	52219	4284	4282	8764	6422
65-69	119520	88015	102494	73037	5422	3305	11604	11673
70-74	114725	120377	92155	104328	8072	5299	14498	10750
75 up	243708	323526	201139	267977	11742	15359	30827	40190
Not Stated	0	0	0	0	0	0	0	0
TOTALS	902273	712978	763309	594818	42410	36508	96554	81652
SUM BY RACE	1615251		1358127		78918		178206	

Table 11-E-11
ALL PERSONS DISCHARGED FROM HOSPITALS ALIVE IN U.S., 1977
ACUTE MYOCARDITIS
ICDA-8-REV. 422.0

<u>AGE</u>	<u>ALL RACES</u>		<u>WHITE</u>		<u>ALL OTHER</u>		<u>NOT STATED</u>	
	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>
0-4	0	0	0	0	0	0	0	0
5-9	0	0	0	0	0	0	0	0
10-14	127	0	127	0	0	0	0	0
15-19	0	0	0	0	0	0	0	0
20-24	0	0	0	0	0	0	0	0
25-29	0	0	0	0	0	0	0	0
30-34	144	160	144	0	0	160	0	0
35-39	317	291	119	291	0	0	208	0
40-44	0	0	0	0	0	0	0	0
45-49	0	342	0	342	0	0	0	0
50-54	0	0	0	0	0	0	0	0
55-59	122	0	122	0	0	0	0	0
60-64	179	333	179	333	0	0	0	0
65-69	131	0	131	0	0	0	0	0
70-74	424	0	424	0	0	0	0	0
75 up	0	118	0	118	0	0	0	0
Not Stated	0	0	0	0	0	0	0	0
TOTALS	1454	1244	1246	1084	0	160	208	0
SUM BY RACE	2698		2330		160		208	

Table 11-E-12
ALL PERSONS DISCHARGED FROM HOSPITALS ALIVE IN U.S., 1977
CHRONIC DISEASE OF ENDOCARDIUM (OF AORTIC VALVE, NONRHEUMATIC)
ICDA-8-REV. 424.1

<u>AGE</u>	<u>ALL RACES</u>		<u>WHITE</u>		<u>ALL OTHER</u>		<u>NOT STATED</u>	
	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>
0-4	0	0	0	0	0	0	0	0
5-9	0	0	0	0	0	0	0	0
10-14	0	0	0	0	0	0	0	0
15-19	0	0	0	0	0	0	0	0
20-24	0	0	0	0	0	0	0	0
25-29	0	0	0	0	0	0	0	0
30-34	0	0	0	0	0	0	0	0
35-39	0	0	0	0	0	0	0	0
40-44	0	0	0	0	0	0	0	0
45-49	0	0	0	0	0	0	0	0
50-54	0	0	0	0	0	0	0	0
55-59	0	0	0	0	0	0	0	0
60-64	0	0	0	0	0	0	0	0
65-69	0	0	0	0	0	0	0	0
70-74	0	0	0	0	0	0	0	0
75 up	0	0	0	0	0	0	0	0
Not Stated	0	0	0	0	0	0	0	0
TOTALS	0	0	0	0	0	0	0	0
SUM BY RACE	0		0		0		0	

Table 11-E-13
ALL PERSONS DISCHARGED FROM HOSPITALS ALIVE IN U.S., 1977
CARDIOMYOPATHY
ICDA-8-REV. 425.0

<u>AGE</u>	<u>ALL RACES</u>		<u>WHITE</u>		<u>ALL OTHER</u>		<u>NOT STATED</u>	
	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>
0-4	0	146	0	146	0	0	0	0
5-9	117	0	117	0	0	0	0	0
10-14	0	375	0	0	0	177	0	198
15-19	0	176	0	0	0	0	0	176
20-24	413	416	235	269	0	147	178	0
25-29	413	805	413	156	0	649	0	0
30-34	1749	447	1434	137	315	185	0	125
35-39	897	360	551	0	346	360	0	0
40-44	2719	819	2136	575	183	119	400	125
45-49	2478	1111	1198	866	810	0	470	245
50-54	3026	1888	2372	1416	489	171	165	301
55-59	2997	2325	2247	1589	314	349	436	387
60-64	3660	2042	2607	1117	885	627	168	298
65-69	2774	1523	2409	817	365	548	0	158
70-74	1797	1463	1649	1042	148	140	0	281
75 up	289	1388	289	1157	0	0	0	231
Not Stated	0	0	0	0	0	0	0	0
TOTALS	23329	15284	17657	9287	3855	3472	1817	2525
SUM BY RACE	38613		26944		7327		4342	

Table 11-E-14
ALL PERSONS DISCHARGED FROM HOSPITALS ALIVE IN U.S., 1977
CONGESTIVE HEART FAILURE
ICDA-8-REV. 427.0

<u>AGE</u>	<u>ALL RACES</u>		<u>WHITE</u>		<u>ALL OTHER</u>		<u>NOT STATED</u>	
	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>
0-4	2306	3003	2031	2494	275	131	0	378
5-9	314	156	314	156	0	0	0	0
10-14	122	0	0	0	122	0	0	0
15-19	0	1127	0	1127	0	0	0	0
20-24	117	512	0	512	0	0	117	0
25-29	578	164	285	164	165	0	128	0
30-34	292	684	161	149	131	535	0	0
35-39	1069	118	498	118	410	0	161	0
40-44	3332	1427	2662	719	483	708	187	0
45-49	5467	3055	4130	1643	672	1128	665	284
50-54	9066	7156	6666	5153	1845	819	555	1184
55-59	14194	10276	11483	7839	1482	1871	1229	566
60-64	22681	16263	17433	12735	1425	1833	3823	1695
65-69	28904	228834	23828	18208	2998	2362	2078	2264
70-74	41998	33370	32194	25640	5701	3514	4103	4216
75 up	76657	108916	61146	85129	6954	10242	8557	13545
Not Stated	0	0	0	0	0	0	0	0
TOTALS	207097	209061	162831	161786	22663	23143	21603	24132
SUM BY RACE	416158		324617		45806		45735	

Table 11-E-15
ALL PERSONS DISCHARGED FROM HOSPITALS ALIVE IN U.S., 1977
LEFT VENTRICULAR FAILURE
ICDA-8-REV. 427.1

<u>AGE</u>	<u>ALL RACES</u>		<u>WHITE</u>		<u>ALL OTHER</u>		<u>NOT STATED</u>	
	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>
0-4	0	0	0	0	0	0	0	0
5-9	0	0	0	0	0	0	0	0
10-14	0	0	0	0	0	0	0	0
15-19	0	0	0	0	0	0	0	0
20-24	0	0	0	0	0	0	0	0
25-29	0	0	0	0	0	0	0	0
30-34	136	0	136	0	0	0	0	0
35-39	0	0	0	0	0	0	0	0
40-44	302	0	302	0	0	0	0	0
45-49	0	108	0	0	0	108	0	0
50-54	295	316	108	316	0	0	187	0
55-59	521	878	521	878	0	0	0	0
60-64	308	696	308	368	0	0	0	328
65-69	841	266	740	266	101	0	0	0
70-74	787	399	527	399	0	0	260	0
75 up	1988	2678	1801	2306	0	246	187	126
Not Stated	0	0	0	0	0	0	0	0
TOTALS	5178	5341	4443	4533	101	354	634	454
SUM BY RACE	10519		8976		455		1088	

Table 11-E-16
ALL PERSONS DISCHARGED FROM HOSPITALS ALIVE IN U.S., 1977
OTHER MYOCARDIAL INSUFFICIENCY
ICDA-8-REV. 428.0

<u>AGE</u>	<u>ALL RACES</u>		<u>WHITE</u>		<u>ALL OTHER</u>		<u>NOT STATED</u>	
	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>
0-4	0	142	0	142	0	0	0	0
5-9	0	181	0	181	0	0	0	0
10-14	164	0	164	0	0	0	0	0
15-19	64	0	64	0	0	0	0	0
20-24	339	0	339	0	0	0	0	0
25-29	300	255	143	255	157	0	0	0
30-34	326	488	326	488	0	0	0	0
35-39	591	404	471	404	0	0	120	0
40-44	852	125	852	125	0	0	0	0
45-49	649	511	649	191	0	0	0	320
50-54	1125	715	665	415	340	0	120	300
55-59	377	932	377	611	0	0	0	321
60-64	1071	1197	1071	1075	0	0	0	122
65-69	1390	1692	1031	1219	0	223	359	250
70-74	1197	2065	628	2065	143	0	426	0
75 up	4137	5652	3372	4536	464	654	301	462
Not Stated	0	0	0	0	0	0	0	0
TOTALS	12582	14359	10152	11707	1104	877	1326	1775
SUM BY RACE	26941		21859		1981		3101	

Table 11-E-17
 ALL PERSONS DISCHARGED FROM HOSPITALS ALIVE IN U.S., 1977
 ILL-DEFINED HEART DISEASE (OTHER AND UNSPECIFIED)
 ICDA-8-REV. 429.9

AGE	ALL RACES		WHITE		ALL OTHER		NOT STATED	
	MALE	FEMALE	MALE	FEMALE	MALE	FEMALE	MALE	FEMALE
0-4	539	168	354	0	0	168	185	0
5-9	129	121	129	0	0	0	0	121
10-14	174	0	174	0	0	0	0	0
15-19	0	0	0	0	0	0	0	0
20-24	0	157	0	157	0	0	0	0
25-29	319	164	0	0	319	0	0	164
30-34	131	0	0	0	131	0	0	0
35-39	0	277	0	0	0	277	0	0
40-44	1007	214	907	214	100	0	0	0
45-49	660	572	546	251	0	199	114	122
50-54	691	332	691	171	0	0	0	161
55-59	1019	915	926	703	93	212	0	0
60-64	1438	1376	865	1236	168	140	405	0
65-69	1407	1059	1108	759	139	0	160	300
70-74	2100	2227	1253	1960	559	0	288	267
75 up	3533	2808	2346	2382	589	0	598	426
Not Stated	0	0	0	0	0	0	0	0
TOTALS	13147	10390	9299	7833	2098	996	1750	1561
SUM BY RACE	23537		17132		3094		3311	

Table 11-E-18
ALL PERSONS DISCHARGED FROM HOSPITALS ALIVE IN U.S., 1977
SUMMARY ALL AGES AND ALL CONDITIONS
SELECTED CONDITIONS FOR WHICH HEART TRANSPLANTATION IS INDICATED

<u>AGE</u>	<u>ALL RACES</u>		<u>WHITE</u>		<u>ALL OTHER</u>		<u>NOT STATED</u>	
	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>
0-4	5488	6157	4491	5139	812	640	185	378
5-9	1383	707	1383	437	0	149	0	121
10-14	2639	1900	2206	1401	256	301	177	198
15-19	1232	2503	858	1689	189	638	185	176
20-24	3054	5349	2147	4598	328	751	579	0
25-29	6294	7876	4011	5533	1503	1614	780	729
30-34	9969	7906	8313	5897	795	1194	861	815
35-39	21373	13369	15735	8998	3496	3826	2142	545
40-44	53068	25195	44849	15530	2824	6173	5395	3492
45-49	78018	37256	64511	27753	5408	5863	8099	3640
50-54	132294	74029	110077	55229	8593	8497	13624	10303
55-59	162984	102590	134087	84657	11420	7718	17477	10215
60-64	192784	126024	164864	102862	11339	9802	16581	13360
65-69	202105	173842	169348	140459	13956	12059	18801	21324
70-74	207896	220408	163518	182799	19465	15599	24913	22010
75 up	386771	598495	312127	483951	25701	38739	48943	75805
Not Stated	0	0	0	0	0	0	0	0
TOTALS	1467352	1403606	1202525	1126932	106085	113563	158742	163111
SUM BY RACE	2870958		2329457		219648		321853	

Table 11-E-19
ALL PERSONS DISCHARGED FROM HOSPITALS ALIVE IN U.S., 1977
AGES 5-54 ONLY
SELECTED CONDITIONS FOR WHICH HEART TRANSPLANTATION IS INDICATED

<u>AGE</u>	<u>ALL RACES</u>		<u>WHITE</u>		<u>ALL OTHER</u>		<u>NOT STATED</u>	
	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>
0-4								
5-9	1383	707	1383	437	0	149	0	121
10-14	2639	1900	2206	1401	256	301	177	198
15-19	1232	2503	858	1689	189	638	185	176
20-24	3054	5349	2147	4598	328	751	579	0
25-29	6294	7876	4011	5533	1503	1614	780	729
30-34	9969	7906	8313	5897	795	1194	861	815
35-39	21373	13369	15735	8998	3496	3826	2142	545
40-44	53068	25195	44849	15530	2824	6173	5395	3492
45-49	78018	37256	64511	27753	5408	5863	8099	3640
50-54	132294	74029	110077	55229	8593	8497	13624	10303
55-59								
60-64								
65-69								
70-74								
75 up								
Not Stated	0	0	0	0	0	0	0	0
TOTALS	309324	176090	254090	127065	23392	29006	31842	20019
SUM BY RACE	485414		381155		52398		51861	

Table 11-E-20
ALL PERSONS DISCHARGED FROM HOSPITALS ALIVE IN U.S., 1977
AGES 10-54 ONLY
SELECTED CONDITIONS FOR WHICH HEART TRANSPLANTATION IS INDICATED

<u>AGE</u>	<u>ALL RACES</u>		<u>WHITE</u>		<u>ALL OTHER</u>		<u>NOT STATED</u>	
	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>
0-4								
5-9								
10-14	2639	1900	2206	1401	256	301	177	198
15-19	1232	2503	858	1689	189	638	185	176
20-24	3054	5349	2147	4598	328	751	579	0
25-29	6294	7876	4011	5533	1503	1614	780	729
30-34	9969	7906	8313	5897	795	1194	861	815
35-39	21373	13369	15735	8998	3496	3826	2142	545
40-44	53068	25195	44849	15530	2824	6173	5395	3492
45-49	78018	37256	64511	27753	5408	5863	8099	3640
50-54	132294	74029	110077	55229	8593	8497	13624	10303
55-59								
60-64								
65-69								
70-74								
75 up								
Not Stated	0	0	0	0	0	0	0	0
TOTALS	307941	175383	252707	126628	23392	28857	31842	19898
SUM BY RACE	483324		379335		52249		51740	

Table 11-E-21
ALL PERSONS DISCHARGED FROM HOSPITALS ALIVE IN U.S., 1977
AGES 5-49 ONLY
SELECTED CONDITIONS FOR WHICH HEART TRANSPLANTATION IS INDICATED

<u>AGE</u>	<u>ALL RACES</u>		<u>WHITE</u>		<u>ALL OTHER</u>		<u>NOT STATED</u>	
	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>
0-4								
5-9	1383	707	1383	437	0	149	0	121
10-14	2639	1900	2206	1401	256	301	177	198
15-19	1232	2503	858	1689	189	638	185	176
20-24	3054	5349	2147	4598	328	751	579	0
25-29	6294	7876	4011	5533	1503	1614	780	729
30-34	9969	7906	8313	5897	795	1194	861	815
35-39	21373	13369	15735	8998	3496	3826	2142	545
40-44	53068	25195	44849	15530	2824	6173	5395	3492
45-49	78018	37256	64511	27753	5408	5863	8099	3640
50-54								
55-59								
60-64								
65-69								
70-74								
75 up								
Not Stated	0	0	0	0	0	0	0	0
TOTALS	177030	102061	144013	71836	14799	20509	18218	9716
SUM BY RACE	279091		215849		35308		27934	

Table 11-E-22
ALL PERSONS DISCHARGED FROM HOSPITALS ALIVE IN U.S., 1977
AGES 10-49 ONLY
SELECTED CONDITIONS FOR WHICH HEART TRANSPLANTATION IS INDICATED

<u>AGE</u>	<u>ALL RACES</u>		<u>WHITE</u>		<u>ALL OTHER</u>		<u>NOT STATED</u>	
	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>
0-4								
5-9								
10-14	2639	1900	2206	1401	256	301	177	198
15-19	1232	2503	858	1689	189	638	185	176
20-24	3054	5349	2147	4598	328	751	579	0
25-29	6294	7876	4011	5533	1503	1614	780	729
30-34	9969	7906	8313	5897	795	1194	861	815
35-39	21373	13369	15735	8998	3496	3826	2142	545
40-44	53068	25195	44849	15530	2824	6173	5395	3492
45-49	78018	37256	64511	27753	5408	5863	8099	3640
50-54								
55-59								
60-64								
65-69								
70-74								
75 up								
Not Stated	0	0	0	0	0	0	0	0
TOTALS	175647	101354	142630	71399	14799	20360	18218	9595
SUM BY RACE	277001		214029		35159		27813	

CHAPTER 12

MORTALITY AS AN INDICATOR OF THE NEED FOR HEART TRANSPLANTATION

Roger W. Evans, Ph.D.
Research Scientist
Health and Population Study Center
Battelle Human Affairs Research Centers
4000 N.E. 41st Street
Seattle, Washington 98105

A. INTRODUCTION

A mortality analysis might be considered a first order approximation of the need for heart transplantation since those persons dying with conditions for which heart transplantation may be indicated could have, potentially, benefited from a heart transplant. While the morbidity analyses presented in Chapter 11 provided some insight into utilization-based estimates of need, they overly exaggerate the number of people for whom heart transplantation may be indicated because many of these patients can surely benefit from other treatments and cardiac procedures such as drug therapy, valve replacement, coronary bypass grafts, and percutaneous transluminal coronary angioplasty. The problem, therefore, is to derive a more suitable estimate of the number of people who may realistically benefit from a transplant. As noted in Chapter 10, such an estimate should not be overly sensitive lending credence to the inaccurate assumption that most people with heart disease could benefit from a new heart--human or mechanical. Instead, such an estimate must, as accurately as possible, be consistent with prevailing patient selection criteria.

In 1969 the Ad Hoc Task Force On Cardiac Transplantation (1969) of the National Heart Institute grappled with a similar problem of estimating the need for cardiac replacement. As noted in Chapter 10, this was but only one of several attempts over the last two decades to do so. While the 1969 Task Force was concerned with cardiac replacement of all types--mechanical and human--their approach to the estimation of need is very similar to that followed in the National

Heart Transplantation Study. They assumed, as this report does, that "...the primary indication for total cardiac replacement is the threat of imminent cardiac death." Given this assumption, "...the number of deaths a year is the upper limiting figure for the number of potential candidates."

Based on mortality statistics presented in Chapter 10, it is quite obvious that the number of candidates for heart transplantation per year could be large. But, as also noted, patient selection criteria are very stringent, and since many people dying of heart disease exceed the upper age limit for heart transplantation (see Table 12-1), the actual number of candidates for the procedure is substantially lower.

In this chapter the goal has been to derive estimates of need for the most recent five years for which mortality data are available. These years are 1976-1980. While data for one year is likely to be sufficient, the intent in using five years of data is to assess the stability of need estimates from year to year. There is one problem, however. The data presented here are based on two separate and inconsistent versions of the International Classification of Diseases --the 8th revision and the 9th revision (NCHS, 1962; HCFA, 1980). Thus, estimates based on the 8th revision are not wholly consistent with those based on the 9th. The 8th revision, being less detailed than the 9th, produces need estimates that are higher than the 9th. While it is possible that the overall decline in the prevalence in heart disease may account for some of the discrepancy, it is unlikely that it accounts for all of it.

Table 12-1
 Death Rates for Diseases of the Heart, According to Age:
 United States, Selected Years 1978-1980

<u>AGE CATEGORY</u>	<u>YEAR</u>		
	<u>1978</u>	<u>1979</u>	<u>1980</u>
	(NUMBER OF DEATHS PER 100,000 POPULATION)		
Under 1 year	26.3	27.1	21.8
1-4 years	2.2	2.1	
5-14 years	1.1	0.8	1.4
15-24 years	2.6	2.7	2.6
25-34 years	8.3	8.7	8.6
35-44 years	46.8	45.4	43.4
45-54 years	188.3	184.5	181.9
55-64 years	521.8	510.9	510.8
65-74 years	1,230.7	1,204.9	1,210.8
75-84 years	3,191.6	3,151.2	3,229.7
85 years and over	7,084.2	6,887.7	7,134.7

SOURCE: National Center for Health Statistics, 1982a:61.

This chapter, like Chapter 11, contains a large number of tables. For every heart condition and for every year, an age, sex, and race breakdown is provided. These detailed tables, rather than being incorporated in the text of the chapter, have been placed in separate appendixes at the end of the chapter (see Appendix 12A - 12E). Summary tables, however, have been incorporated in the text according to several "need categories." The summary tables have been compiled on a year-by-year basis. Two types of summary tables are incorporated in the text: (1) need estimates according to specific diagnoses and need categories and (2) total need on the basis of age, sex, and race, ignoring specific disease diagnoses. The overall intent of this chapter is to provide sufficient detailed data to permit the routine calculation of need based on assumptions that may differ from those followed in this report.

In the remainder of this chapter, the data and methods are described and the results presented. In the results section, more refined estimates of need are produced based on the referral experience of Stanford University Medical Center. The data used to refine these estimates, based on more specific patient selection criteria, have been previously published by the Stanford team (Baumgartner et al., 1979).

B. DATA AND METHODS

1. DATA

The description of the mortality data used in these analyses is derived from several publications of the National Center for Health

Statistics (NCHS). While the data actually vary from year-to-year, most of the NCHS publications that are now available are based on the 1978 data (NCHS, 1982b; 1984). Thus, the description that follows is for the 1978 data, although data incorporated in this chapter are for the years 1976-1980. The data contained in the tables included in the chapter are unpublished and have been provided by the National Center for Health Statistics.

a. Nature and Sources of Data. Data shown in this chapter are based on information from all death certificates from the 50 states and the District of Columbia. Mortality statistics are based on information obtained directly from copies of the original certificates received from the State registration offices and from precoded data provided to the NCHS by States through the Vital Statistics Cooperative Program.

Thirty-six States participated in the cooperative program in 1978. Seven of the participating States submitted all mortality data, including cause of death, precoded on computer tape. The remaining 29 States in the Program submitted computer tapes with precoded demographic data, along with copies of the original certificates from which NCHS coded the cause of death. For the balance of the States, which were not participants in the cooperative system in 1978, NCHS coded both the demographic and the medical data directly from copies of the original death certificates.

Data for the U.S. as a whole refer to events occurring to residents within the United States.

b. Cause-of-Death Classification. The mortality statistics presented here are compiled in accordance with the World Health Organization regulations, which specify that member nations classify causes of death in accordance with the current revision of the International Statistical Classification of Diseases, Injuries, and Causes of Death. An adaptation of the Eighth Revision of the classification--Eighth Revision International Classification of Diseases, Adapted for Use in the United States--was used for the years 1968-78. Besides specifying the classification, the World Health Organization regulations outline the form of medical certification and the coding procedures to be used. Underlying causes-of-death data and reported cause-of-death data presented in this chapter were coded by procedures outlined in Vital Statistics Instruction Manuals issued by NCHS, Part 2a, "Classifying the Underlying Cause of Death" and Part 2b, "Medical Classification of Death Records for Automated Classification of Medical Entities."

c. Definition of Underlying Cause of Death. For all years reported here, cause-of-death statistics are based solely on the underlying cause of death. The underlying cause of death is defined as the disease or injury that initiated the train of events leading directly to death or as the circumstances of the accident or violence that produced the fatal injury (NCHS, 1984). When more than one cause or condition is entered by the physician, the underlying cause is determined by the sequence of conditions on the certificate, provisions of the International Classifications of Diseases, and associated classification rules. This is the cause by which deaths

have been routinely tabulated and cross-classified by demographic variables such as age, race, sex, and geographic area of occurrence and residence. When only information related to the underlying cause of death is made available, a great deal of information appearing on death certificates is lost to its data user, including the conditions recorded as the immediate cause of death, any diseases that intervene between the underlying and immediate cause, and any contributory conditions outside the sequence of conditions leading to death.

More recently the NCHS has begun to make available, multiple-cause-of-death data, primarily due to the information loss that has been traditionally associated with mortality. For example, in 1978 nearly 75 percent of the death certificates had more than one condition listed; one-third of the certificates had two conditions; one-fourth had three; and 15 percent had four or more. When so many conditions are reported and only one is listed for mortality statistics, a substantial amount of diagnostic information remains unused.

As underscored in a recent report from NCHS (1984), the concept of multiple-cause-of-death is indeed, an important one. Relative to the number of deaths for which they are reported on the death certificate, some causes of death are selected as the underlying cause of death much more often than others. This relationship can be expressed by a ratio obtained by dividing the total number of deaths for which a given cause appears on the death certificate by the number of those for which it is selected as the underlying cause. The ratio is close to 1.0 if the cause is usually selected as the underlying

cause when it is on the death certificate; it is larger for causes less often selected as the underlying cause relative to the total number of deaths for which they are reported.

Table 12-2 shows, for a list of selected cardiovascular causes, the number of deaths for which they were reported on the death certificate, the number of deaths for which they were selected as the underlying cause, and the number for which they were not selected as the underlying cause. Also shown for each of the cause categories is the ratio relating the total number of deaths for which the cause was reported to the number of deaths for which it was selected as the underlying cause.

Disease categories with large ratios are those that appear much more frequently as reported causes than as underlying causes. They, therefore, include diseases that in certain cases would not be fatal by themselves but, combined with another serious disease, contribute to the death. Also in this group are diseases that were not part of a sequence of conditions they did not initiate and diseases that occurred either as the immediate or precipitating cause or as a complication where another cause initiated the sequence of events leading to death.

Clearly, multiple cause of death data would yield a larger number of people who might benefit from a heart transplant than data based simply on underlying cause of death only. It could be argued that such data should be used for deriving estimates of need. However, it must be recognized that people with multiple causes of death that are sufficiently significant to be listed as a cause of

Table 12-2
Deaths With Selected Cardiovascular Causes as Reported Causes,
By Whether Selected as Underlying Causes, and Ratios of
Reported to Underlying Cause: United States, 1978

Cause of Death and Category Number of the Eighth International Classification of Diseases, Adapted, 1965	Total Reported	Selected As Underlying Cause	Not Selected As Underlying Cause	Ratio of Reported to Underlying Cause
Diseases of heart, 390-398, 402, 404, 410-429	1,014,863	729,510	285,353	1:4
Active rheumatic fever and chronic rheumatic heart disease, 390-398	24,682	13,402	11,280	1:8
Ischemic heart disease, 410-523	763,810	642,270	121,540	1:2
Chronic ischemic heart disease, 412	604,945	335,263	269,682	1:8
All other forms of heart disease, 420-423, 425-427, 429	488,000	59,430	428,570	8:2

SOURCE: National Center for Health Statistics, 1984:6.

death may be excluded as candidates for heart transplantation on the basis of known contraindications. Thus, a conservative approach has been followed in deriving need estimates in this report. Only underlying cause of death data have been used.

2. METHODS

As noted above, and presented in detail in Chapter 10, there are many contraindications to heart transplantation. Once again, these contraindications are reproduced in Table 12-3. Unfortunately in analyzing the need for heart transplantation based on mortality data, it has been impossible to take all these factors into account. In fact, one indication for heart transplantation has been considered --underlying cause of death consistent with selected conditions for which heart transplantation may be indicated (see Tables 12-4 and 12-5)--and one contraindication--age.

On the basis of age, several need categories have been defined. Although age in excess of 50 years might be considered a relative contraindication and age over 54 an absolute contraindication to heart transplantation, defining several need categories allows a margin of flexibility in determining how many people might benefit. Also, at this time, the lower bound estimate of age at which heart transplantation is appropriate is under review. Thus, for purposes of compiling diagnosis-specific need estimates, five need categories have been used. They are:

- . all ages
- . ages 5-54

Table 12-3
Contraindications To Heart Transplantation As Specified By
the National Heart, Lung, and Blood Institute's
Special Advisory Group

-
- (1) Advancing age--e.g., beyond the age (normally about 50) at which the individual begins to have diminished capacity to withstand postoperative complications;
 - (2) Severe pulmonary hypertension as reflected, for example, by a pulmonary artery systolic pressure over 65-70mm Hg and exceeding pulmonary artery wedge pressure by about 40 or more mm Hg, or a calculated pulmonary vascular resistance above approximately 6 Wood units (applicable to orthotopic cardiac transplantation because of the limited work capacity of a normal donor right ventricle);
 - (3) Irreversible and severe hepatic or renal dysfunction (because of the likelihood of exacerbation early postoperatively and because of interference with immunosuppressive regimens);
 - (4) Active systemic infection (because of the likelihood of exacerbation with initiation of immunosuppression);
 - (5) Any other systemic disease considered likely to limit or preclude survival and rehabilitation after transplantation;
 - (6) A history of behavior pattern or psychiatric illness likely to interfere significantly with compliance with a disciplined medical regimen (because a lifelong medical regimen is necessary, requiring multiple drugs several times a day with serious consequences in the event of their interruption or excessive consumption);
 - (7) Recent and unresolved pulmonary infarction or pulmonary roentgenographic evidence of abnormalities of unclear etiology (because of the likelihood of pulmonary infection or its exacerbation with initiation of immunosuppression under such circumstances);
 - (8) Insulin-requiring diabetes mellitus (because of exacerbation by chronic corticosteroid therapy);
 - (9) Symptomatic or documented severe asymptomatic peripheral or cerebrovascular disease (because of observed accelerated progression in some patients after cardiac transplantation and on chronic corticosteroid treatment);

Table 12-3 (Continued)
Contraindications To Heart Transplantation As Specified By
the National Heart, Lung, and Blood Institute's
Special Advisory Group

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-
- (10) Acute peptic ulcer disease (because of the likelihood of early postoperative exacerbation);
 - (11) The absence of adequate external psychosocial supports for either short or long-term bases (because such support is generally necessary during the inevitable waxing and waning of the clinical status of the patient and for adherence to the lifelong medical regimen).

SOURCE: Federal Register Vol. 46, No. 14, Pgs. 7072-7074, Thursday, January 22, 1981.

Table 12-4
 Cardiac and Other Diseases and Conditions
 Potentially Requiring Heart Transplantation:
 Final List Based on ICDA-8-Rev Classification

<u>ICDA-8-REV CODE</u>	<u>DISEASE OR CONDITION</u>
171	<u>MALIGNANT NEOPLASM OF CONNECTIVE AND OTHER SOFT TISSUE</u>
171.1	Trunk
394	<u>DISEASES OF MITRAL VALVE</u>
394.0	Specified as rheumatic
394.9	Not specified as rheumatic
395	<u>DISEASES OF AORTIC VALVE</u>
395.0	Specified as rheumatic
395.9	Not specified as rheumatic
396	<u>DISEASES OF MITRAL AND AORTIC VALVES</u>
396.0	Specified as rheumatic
396.9	Not specified as rheumatic
398	<u>OTHER HEART DISEASE, SPECIFIED AS RHEUMATIC</u>
412	<u>CHRONIC ISCHEMIC HEART DISEASE</u>
412.0	With hypertensive disease
412.9	Without mention of hypertensive disease
422	<u>ACUTE MYOCARDITIS</u>

Table 12-4 (Continued)
 Cardiac and Other Diseases and Conditions
 Potentially Requiring Heart Transplantation:
 Final List Based on ICDA-8-Rev Classification

<u>ICDA-8-REV CODE</u>	<u>DISEASE OR CONDITION</u>
424	<u>CHRONIC DISEASE OF ENDOCARDIUM</u>
424.1	Of aortic valve, nonrheumatic
425	<u>CARDIOMYOPATHY</u>
427	<u>SYMPTOMATIC HEART DISEASE</u>
427.0	Congestive heart failure
427.1	Left ventricular failure
428	<u>OTHER MYOCARDIAL INSUFFICIENCY</u>
429	<u>ILL-DEFINED HEART DISEASE</u>
429.9	Other and unspecified heart diseases

List excludes all hypertensive and acute myocardial infarction.

This list compiled by Bernard J. Gersh, M.D., Division of Cardiovascular Disease and Internal Medicine, Mayo Clinic, Rochester, Minnesota. The list has been reviewed by Henry Bahnson, M.D. (University of Pittsburgh), Jack G. Copeland, M.D. (University of Arizona), Stuart Jamieson, M.D. (Stanford University Medical Center), and Robert Wallace, M.D. (Georgetown University).

REFERENCE: See Health Care Financing Administration, 1980.

Table 12-5
Cardiac and Other Diseases and Conditions
Potentially Requiring Heart Transplantation:
Final List Based on ICD-9-CM Classification

<u>ICD-9-CM CODE</u>	<u>DISEASE OR CONDITION</u>
164	<u>MALIGNANT NEOPLASM OF THYMUS, HEART, AND MEDIASTINUM</u>
164.1	Heart
394	<u>DISEASES OF THE MITRAL VALVE</u>
394.0	Mitral stenosis
394.1	Rheumatic mitral insufficiency
394.2	Mitral stenosis with insufficiency
394.9	Other and unspecified mitral valve diseases
395	<u>DISEASES OF THE AORTIC VALVE</u>
395.0	Rheumatic aortic stenosis
395.1	Rheumatic aortic insufficiency
395.2	Rheumatic aortic stenosis with insufficiency
395.9	Other unspecific rheumatic aortic diseases
396	<u>DISEASES OF MITRAL AND AORTIC VALVES</u>
396.0	Mitral valve stenosis and aortic valve stenosis
396.1	Mitral valve stenosis and aortic valve insufficiency
396.2	Mitral valve insufficiency and aortic valve stenosis
396.3	Mitral valve insufficiency and aortic valve insufficiency
396.8	Multiple involvement of mitral and aortic valves
396.9	Mitral and aortic valve diseases unspecified
398	<u>OTHER RHEUMATIC HEART DISEASE</u>
398.0	Rheumatic myocarditis
398.9	Other and unspecified rheumatic heart disease
398.90	Rheumatic heart disease, unspecified
398.91	Rheumatic heart failure (congestive)
398.99	Other

Table 12-5 (Continued)
 Cardiac and Other Diseases and Conditions
 Potentially Requiring Heart Transplantation:
 Final List Based on ICD-9-CM Classification

<u>ICD-9-CM CODE</u>	<u>DISEASE OR CONDITION</u>
414	<u>OTHER FORMS OF CHRONIC ISCHEMIC HEART DISEASE</u>
414.0	Coronary atherosclerosis
414.1	Aneurysm of heart
414.8	Other specified forms of chronic ischemic heart disease
424	<u>OTHER DISEASES OF ENDOCARDIUM</u>
424.1	Aortic valve disorders
425	<u>CARDIOMYOPATHY</u>
425.0	Endomyocardial fibrosis
425.4	Other primary cardiomyopathies
428	<u>HEART FAILURE</u>
428.0	Congestive heart failure
428.1	Left ventricular failure
428.9	Heart failure, unspecified
429	<u>ILL-DEFINED DESCRIPTIONS AND COMPLICATIONS OF HEART DISEASE</u>
429.0	Myocarditis, unspecified
429.1	Myocardial degeneration
429.3	Cardiomegaly

List excludes all hypertension and acute myocardial infarction.

This list compiled by Bernard J. Gersh, M.D., Division of Cardiovascular Disease and Internal Medicine, Mayo Clinic, Rochester, Minnesota. The list has been reviewed by Henry Bahnson, M.D. (University of Pittsburgh), Jack G. Copeland, M.D. (University of Arizona), Stuart Jamieson, M.D. (Stanford University Medical Center), and Robert Wallace, M.D. (Georgetown University).

- . ages 10-54
- . ages 5-49
- . ages 10-49

It is possible that in the future, the age criterion for heart transplantation could be relaxed further--people over the age of 55 might be considered for a heart transplant (Shumway, 1983). This is primarily due to the use of cyclosporine as primary immunosuppressive therapy.

As noted above, the unpublished data presented here have been compiled by the National Center for Health Statistics. The need estimates contained in this chapter could be further refined through an extensive reanalysis of the NCHS data excluding persons who have listed as contributory conditions any of the known contraindications to heart transplantation. Such an analysis would surely produce lower need estimates than reported here.

C. RESULTS

Below both gross and refined estimates of need for heart transplantation have been produced. While much of the discussion and data focus on the results of the gross estimation process, the refined estimates, as the terms imply, undoubtedly yield more accurate need estimates, provided prevailing patient selection criteria are adhered to rigidly.

1. GROSS NEED ESTIMATES

Tables 12-6 through 12-10 contain a condition-by-condition breakdown according to various need categories of the number of people who may potentially benefit from a heart transplant based on their underlying cause of death. The tables are presented beginning with 1980 and going back to 1976 (1980 was the most recent year for which mortality data were available at the time this chapter was written). Most noteworthy according to these tables is the fact that, among people between the ages of 10 and 54 years, chronic ischemic heart disease is the primary (in terms of potential candidates) indication for heart transplantation. Table 12-11, based on the 1979 and 1980 mortality data, shows the five leading indications for heart transplantation for persons between the ages of 10 and 54 years. Although not in direct proportion, these indications are similar in distribution to the preoperative diagnosis of transplant recipients at Stanford University Medical Center (see Table 12-12).

Considerable data are contained in Tables 12-6 through 12-10 and it is somewhat difficult to get a clear picture of need without carefully perusing them. Table 12-13 succinctly summarizes the year-to-year estimates of need by need category. It should be noted, once again, that the variability in the need estimates from 1976 and 1977 to 1978, 1979 and 1980 are most likely due to the changes in the classification of diseases, although it could, in part, be explained by advances in the treatment of cardiovascular disease. Less variation is found in the estimates between years when the diagnoses are directly comparable from year-to-year. For example, for diagnosis

Table 12-6
MORTALITY ANALYSIS
CONDITIONS FOR WHICH HEART TRANSPLANTATION MAY BE INDICATED
ALL DEATHS IN THE UNITED STATES, 1980

ICD-9.CM	UNDERLYING CAUSE OF DEATH	ALL AGES	NEED CATEGORY ^a			
			AGES 5-54	AGES 10-54	AGES 5-49	AGES 10-49
164	<u>Malignant neoplasm of thymus, heart, and mediastinum</u>					
164.1	Cardiac tumor	43	17	17	11	11
394	<u>Diseases of mitral valve</u>					
394.0	Mitral stenosis	1077	202	200	124	122
394.1	Rheumatic mitral insufficiency	336	41	41	32	32
394.2	Mitral stenosis with insufficiency	188	20	20	13	13
394.9	Other unspecified mitral valve diseases	1477	332	331	222	221
395	<u>Diseases of Aortic Valve</u>					
395.0	Rheumatic aortic stenosis	174	21	21	15	15
395.1	Rheumatic aortic insufficiency	76	11	11	8	8
395.2	Rheumatic aortic stenosis with insufficiency	65	10	10	6	6
395.9	Other unspecified rheumatic aortic diseases	116	35	35	24	24

Table 12-6 (Continued)
MORTALITY ANALYSIS
CONDITIONS FOR WHICH HEART TRANSPLANTATION MAY BE INDICATED
ALL DEATHS IN THE UNITED STATES, 1980

ICD-9.CM	UNDERLYING CAUSE OF DEATH	ALL AGES	NEED CATEGORY ^a			
			AGES 5-54	AGES 10-54	AGES 5-49	AGES 10-49
396 ^b	<u>Diseases of mitral and aortic valves</u>	990	191	191	118	118
398	<u>Other rheumatic heart disease</u>					
398.0	Rheumatic myocarditis	15	7	7	5	5
398.9 ^c	Other and unspecified rheumatic heart diseases	2653	419	416	266	263
414	<u>Other forms of chronic ischemic heart disease</u>					
414.0	Coronary atherosclerosis	218947	8331	8327	4049	4049
414.1	Aneurysm of heart	477	75	74	42	41
414.8	Other specified forms of chronic ischemic heart disease	3684	332	332	162	162
424	<u>Other Diseases of Endocardium</u>					
424.1	Aortic valve disorders	4721	349	344	232	227

Table 12-6 (Continued)
MORTALITY ANALYSIS
CONDITIONS FOR WHICH HEART TRANSPLANTATION MAY BE INDICATED
ALL DEATHS IN THE UNITED STATES, 1980

ICD-9.CM	UNDERLYING CAUSE OF DEATH	ALL AGES	NEED CATEGORY ^a			AGES 10-49
			AGES 5-54	AGES 10-54	AGES 5-49	
425	<u>Cardiomyopathy</u>					
425.0	Endomyocardial fibrosis	5	2	2	2	2
425.4	Other primary cardiomyopathy	6848	1973	1958	1360	1345
428	<u>Heart failure</u>					
428.0	Congestive heart failure	21804	760	756	406	402
428.1	Left heart failure	263	23	23	13	13
428.9	Heart failure, unspecified	5348	352	351	212	211
429	<u>Ill-defined descriptions and complications of heart disease</u>					
429.0	Myocarditis, unspecified	1508	305	289	264	248
429.1	Myocardial degeneration	1085	75	75	46	46
429.3	Cardiomegaly	693	256	254	210	208
	TOTALS	272593	14139	14085	7842	7788

^aIncludes deaths where age was not stated.

^bIncludes the following diagnoses: 396.0, 396.1, 396.2, 396.3, 396.8, and 396.9.

^cIncludes the following diagnoses: 398.9, 398.90, 398.91, and 398.99.

Table 12-7
MORTALITY ANALYSIS
CONDITIONS FOR WHICH HEART TRANSPLANTATION MAY BE INDICATED
ALL DEATHS IN THE UNITED STATES, 1979

ICD-9-CM	UNDERLYING CAUSE OF DEATH	ALL AGES	NEED CATEGORY ^a			
			AGES 5-54	AGES 10-54	AGES 5-49	AGES 10-49
164	<u>Malignant neoplasm of thymus, heart, and mediastinum</u>					
164.1	Cardiac tumor	55	13	13	10	10
394	<u>Diseases of mitral valve</u>					
394.0	Mitral stenosis	1015	198	196	111	109
394.1	Rheumatic mitral insufficiency	338	49	49	34	34
394.2	Mitral stenosis with insufficiency	173	22	22	15	15
394.9	Other unspecified mitral valve diseases	1408	325	324	220	219
395	<u>Diseases of Aortic Valve</u>					
395.0	Rheumatic aortic stenosis	209	23	23	16	16
395.1	Rheumatic aortic insufficiency	90	21	21	15	15
395.2	Rheumatic aortic stenosis with insufficiency	56	8	8	4	4
395.9	Other unspecified rheumatic aortic diseases	118	29	29	21	21

Table 12-7 (Continued)
MORTALITY ANALYSIS
CONDITIONS FOR WHICH HEART TRANSPLANTATION MAY BE INDICATED
ALL DEATHS IN THE UNITED STATES, 1979

ICD-9-CM	UNDERLYING CAUSE OF DEATH	NEED CATEGORY ^a				
		ALL AGES	AGES 5-54	AGES 10-54	AGES 5-49	AGES 10-49
396 ^b	<u>Diseases of mitral and aortic valves</u>	992	200	200	125	125
398	<u>Other rheumatic heart disease</u>					
398.0	Rheumatic myocarditis	18	6	6	5	5
398.9 ^c	Other and unspecified rheumatic heart diseases	2707	471	471	295	295
414	<u>Other forms of chronic ischemic heart disease</u>					
414.0	Coronary atherosclerosis	208931	8355	8353	4058	4056
414.1	Aneurysm of heart	445	93	93	58	58
414.8	Other specified forms of chronic ischemic heart disease	2864	262	262	115	115
424	<u>Other Diseases of Endocardium</u>					
424.1	Aortic valve disorders	4263	362	359	232	229

Table 12-7 (Continued)
MORTALITY ANALYSIS
CONDITIONS FOR WHICH HEART TRANSPLANTATION MAY BE INDICATED
ALL DEATHS IN THE UNITED STATES, 1979

ICD-9-CM	UNDERLYING CAUSE OF DEATH	ALL AGES	NEED CATEGORY ^a			
			AGES 5-54	AGES 10-54	AGES 5-49	AGES 10-49
425	<u>Cardiomyopathy</u>					
425.0	Endomyocardial fibrosis	4	2	2	2	2
425.4	Other primary cardiomyopathy	5990	1867	1852	1263	1248
428	<u>Heart failure</u>					
428.0	Congestive heart failure	19936	723	721	361	359
428.1	Left heart failure	250	24	24	17	17
428.9	Heart failure, unspecified	4888	366	362	223	219
429	<u>Ill-defined descriptions and complications of heart disease</u>					
429.0	Myocarditis, unspecified	1598	289	279	240	230
429.1	Myocardial degeneration	1069	82	81	39	38
429.3	Cardiomegaly	699	231	230	190	189
	TOTALS	258,116	14,021	13,980	7,669	7,628

^aIncludes deaths where age was not stated.

^bIncludes the following diagnoses: 396.0, 396.1, 396.2, 396.3, 396.8, and 396.9.

^cIncludes the following diagnoses: 398.9, 398.90, 398.91, and 398.99.

Table 12-8
MORTALITY ANALYSIS
CONDITIONS FOR WHICH HEART TRANSPLANTATION MAY BE INDICATED
ALL DEATHS IN THE UNITED STATES, 1978

ICDA-8, REV.	UNDERLYING CAUSE OF DEATH	ALL AGES	NEED CATEGORY ^a			
			AGES 5-54	AGES 10-54	AGES 5-49	AGES 10-49
171	<u>Malignant neoplasm of connective and other soft tissue</u>					
171.1	Trunk	283	78	74	60	56
394	<u>Diseases of mitral valve</u>					
394.0	Specified as rheumatic	1631	310	310	197	197
394.9	Not specified as rheumatic	2215	395	390	240	235
395	<u>Diseases of aortic valve</u>					
395.0	Specified as rheumatic	567	129	129	92	92
395.9	Not specified as rheumatic	4248	442	441	280	279
396	<u>Diseases of mitral and aortic valves</u>					
396.0	Specified as rheumatic	618	161	161	106	106
396.9	Not specified as rheumatic	473	81	81	56	56
398	<u>Other heart disease, specified as rheumatic</u>	2924	529	527	330	328

Table 12-8 (Continued)
MORTALITY ANALYSIS
CONDITIONS FOR WHICH HEART TRANSPLANTATION MAY BE INDICATED
ALL DEATHS IN THE UNITED STATES, 1978

ICDA.8.REV.	UNDERLYING CAUSE OF DEATH	ALL AGES	NEED CATEGORY ^a			
			AGES 5-54	AGES 10-54	AGES 5-49	AGES 10-49
412	<u>Chronic ischemic heart disease</u>	335213	17597	17593	8487	8483
422	<u>Acute myocarditis</u>	322	188	176	167	155
424	<u>Chronic disease of endocardium</u>					
424.1	Of aortic valve, nonrheumatic	180	5	5	3	3
425	<u>Cardiomyopathy</u>	5474	1830	1815	1269	1254
427	<u>Symptomatic heart disease</u>					
427.0	Congestive Heart Failure	18374	774	770	400	396
427.1	Left ventricular failure	269	36	36	32	32
428	<u>Other myocardial insufficiency</u>	2785	507	496	374	363
429	<u>Ill-defined heart diseases</u>					
429.9	Other and unspecified heart diseases	6861	942	937	514	509
	TOTALS	382,437	24,004	23,941	12,607	12,544

^a Includes deaths where age was not stated.

Table 12-9
MORTALITY ANALYSIS
CONDITIONS FOR WHICH HEART TRANSPLANTATION MAY BE INDICATED
ALL DEATHS IN THE UNITED STATES, 1977

ICDA-8.REV.	UNDERLYING CAUSE OF DEATH	ALL AGES	NEED CATEGORY ^a			
			AGES 5-54	AGES 10-54	AGES 5-49	AGES 10-49
171	<u>Malignant neoplasm of connective and other soft tissue</u>					
171.1	Trunk	265	83	80	65	62
394	<u>Diseases of mitral valve</u>					
394.0	Specified as rheumatic	1638	382	382	217	217
394.9	Not specified as rheumatic	1970	400	399	253	252
395	<u>Diseases of aortic valve</u>					
395.0	Specified as rheumatic	624	139	139	92	92
395.9	Not specified as rheumatic	3714	488	486	305	303
396	<u>Diseases of mitral and aortic valves</u>					
396.0	Specified as rheumatic	622	156	156	101	101
396.9	Not specified as rheumatic	442	93	93	67	67
398	<u>Other heart disease, specified as rheumatic</u>	3029	601	600	394	393

Table 12-9 (Continued)
MORTALITY ANALYSIS
CONDITIONS FOR WHICH HEART TRANSPLANTATION MAY BE INDICATED
ALL DEATHS IN THE UNITED STATES, 1977

ICDA-8.REV.	UNDERLYING CAUSE OF DEATH	ALL AGES	NEED CATEGORY ^a			
			AGES 5-54	AGES 10-54	AGES 5-49	AGES 10-49
412	<u>Chronic ischemic heart disease</u>	327830	17843	17840	8538	8535
422	<u>Acute myocarditis</u>	278	151	145	139	133
424	<u>Chronic disease of endocardium</u>					
424.1	<u>Of aortic valve, nonrheumatic</u>	195	5	4	5	4
425	<u>Cardiomyopathy</u>	4576	1705	1684	1166	1145
427	<u>Symptomatic heart disease</u>					
427.0	<u>Congestive Heart Failure</u>	16979	801	792	435	426
427.1	<u>Left ventricular failure</u>	283	40	40	27	27
428	<u>Other myocardial insufficiency</u>	2819	432	427	328	323
429	<u>Ill-defined heart diseases</u>					
429.9	<u>Other and unspecified heart diseases</u>	6690	913	912	508	507
	TOTALS	371,954	24,232	24,179	12,640	12,587

^aIncludes deaths where age was not stated.

Table 12-10
MORTALITY ANALYSIS
CONDITIONS FOR WHICH HEART TRANSPLANTATION MAY BE INDICATED
ALL DEATHS IN THE UNITED STATES, 1976

ICDA-8.REV.	UNDERLYING CAUSE OF DEATH	ALL AGES	NEED CATEGORY ^a			
			AGES 5-54	AGES 10-54	AGES 5-49	AGES 10-49
171	<u>Malignant neoplasm of connective and other soft tissue</u>					
171.1	Trunk	224	65	63	51	49
394	<u>Diseases of mitral valve</u>					
394.0	Specified as rheumatic	1865	431	428	276	273
394.9	Not specified as rheumatic	1836	371	368	231	228
395	<u>Diseases of aortic valve</u>					
395.0	Specified as rheumatic	667	173	172	111	110
395.9	Not specified as rheumatic	3588	474	471	301	298
396	<u>Diseases of mitral and aortic valves</u>					
396.0	Specified as rheumatic	663	194	194	113	113
396.9	Not specified as rheumatic	457	103	103	67	67
398	<u>Other heart disease, specified as rheumatic</u>	3291	665	662	427	424

Table 12-10 (Continued)
MORTALITY ANALYSIS
CONDITIONS FOR WHICH HEART TRANSPLANTATION MAY BE INDICATED
ALL DEATHS IN THE UNITED STATES, 1976

ICDA-8, REV.	UNDERLYING CAUSE OF DEATH	NEED CATEGORY ^a				
		ALL AGES	AGES 5-54	AGES 10-54	AGES 5-49	AGES 10-49
412	<u>Chronic ischemic heart disease</u>	322382	17142	17140	8202	8200
422	<u>Acute myocarditis</u>	363	197	191	172	166
424	<u>Chronic disease of endocardium</u>					
424.1	<u>Of aortic valve, nonrheumatic</u>	185	8	8	5	5
425	<u>Cardiomyopathy</u>	3879	1615	1599	1117	1101
427	<u>Symptomatic heart disease</u>					
427.0	<u>Congestive heart failure</u>	16046	781	779	448	446
427.1	<u>Left ventricular failure</u>	286	32	32	20	20
428	<u>Other myocardial insufficiency</u>	3046	508	497	365	354
429	<u>Ill-defined heart diseases</u>					
429.9	<u>Other and unspecified heart diseases</u>	7659	1085	1083	578	576
	TOTALS	366,437	23,844	23,790	12,484	12,430

^aIncludes deaths where age was not stated.

Table 12-11
Five Leading Indications For Heart Transplantation
For Persons Ages 10-54 Years, 1979 and 1980

<u>INDICATION</u>	<u>1979</u> (NUMBER OF POTENTIAL CANDIDATES)	
	<u>1979</u>	<u>1980</u>
Coronary atherosclerosis	8,353	8,327
Other primary cardiomyopathy	1,852	1,958
Congestive heart failure	721	756
Other and unspecified rheumatic heart disease	471	416
Heart failure, unspecified	362	351

Table 12-12
Preoperative Primary Diagnosis of Heart Transplant Recipients
At Stanford University Medical Center, 1979

<u>PRIMARY DIAGNOSIS</u>	<u>NUMBER OF PATIENTS</u>	<u>PERCENT OF PATIENTS</u>
Coronary artery disease	78	57.4
Idiopathic cardiomyopathy	54	39.7
Posttraumatic aneurysm	1	.7
Valve disease with cardiomyopathy	<u>3</u>	<u>2.2</u>
TOTALS	136	100.0

SOURCE: Baumgartner et al., 1979:11.

Table 12-13
Year-to-Year Estimates of the Need for Heart Transplantation
According to Need Category

<u>YEAR</u>	<u>ALL AGES</u>	<u>NEED CATEGORY^a</u>			
		<u>AGES 5-54</u>	<u>AGES 10-54</u>	<u>AGES 5-49</u>	<u>AGES 10-49</u>
1980 ^b	272,593	14,139	14,085	7,842	7,788
1979 ^b	258,116	14,021	13,980	7,669	7,628
1978 ^c	382,437	24,004	23,941	12,607	12,544
1977 ^c	371,954	24,232	24,179	12,640	12,587
1976 ^c	366,437	23,844	23,790	12,484	12,430

^aIncludes deaths where age was not stated.

^bBased on International Classification of Diseases, 9th Revision.

^cBased on International Classification of Diseases, 8th Revision.

394, diseases of the mitral valve, there were 700 potential heart transplant candidates in 1978 and 591 in 1979. The greatest variation between the two classification systems is in the number of candidates with chronic ischemic heart disease as an underlying cause of death. Given the greater specificity of the codes in the ICD.9 classification system, estimates of need in both 1979 and 1980 are likely to be more accurate than those for previous years. Data from these years provide the basis for the following discussion.

Thus, based on mortality data for 1979 and 1980, it is estimated that the need for heart transplantation in the U.S. for persons between the ages of 10 and 54 is around 14,000. As shown in Table 12-13, if all persons were considered candidates for heart transplantation, regardless of age, the number of people who might be considered potential candidates would be around 258,000 to 273,000. It is unrealistic, however, to assume that every one who has a heart condition for which heart transplantation may be indicated would be qualified to receive a heart transplant.

Also, shown in Table 12-13, are the estimates for other need categories. If the age of eligibility is adjusted to 5 to 54 years, the number of candidates changes only slightly, remaining around 14,000. If the age of candidacy is changed to 5-49 years, 7,700 people might be considered potential candidates. With further adjustments, 7,600 people between the ages of 10-49 might be considered potential candidates. Finally, if the age categories are adjusted to 10 to 59 years of age, or 10 to 64 years, the need estimates for 1979 would be 25,122 and 40,904, respectively.

Detailed age, sex, and race need tables for 1980, 1979, 1978, 1977, and 1976 are provided in Appendixes 12-A through 12-E at the end of this chapter. Included with these tables are several summary tables that show gross estimates of need by need category for each year, not specific according to underlying cause of death. There is one such summary table for the following need categories: all ages, ages 5-54, ages 10-54, ages 5-49, and ages 10-49. Unfortunately, there are year-to-year variations in the race specificity of the mortality data. For example, for some years data are available for blacks only, while in other years blacks are combined in the category of "all other." Great care must be exercised in reviewing the tables contained in the Appendixes because, while blacks are occasionally broken out separately, they are always included in the "all other" category. This is unlike the need tables provided in Chapter 11.

In order to distill as much as possible the data contained in Appendixes 12-A through 12-E, several summary tables have been prepared that show the race and sex breakdowns by year for each of the need categories. These data are contained in Tables 12-14 through 12-18. In reviewing these tables it is particularly important to direct attention to the title of each table which indicates what need category the data refer to. This can be highlighted as follows:

<u>TABLE</u>	<u>NEED CATEGORY</u>
12-14	All Ages
12-15	Ages 5-54

Table 12-14
Race and Sex Breakdown for "All Ages" Need Category
(Deaths)

<u>RACE/SEX</u>	<u>YEAR</u>				
	<u>1980</u>	<u>1979</u>	<u>1978</u>	<u>1977</u>	<u>1976</u>
ALL RACES	272,593	258,116	382,437	371,954	366,437
Male	130,513	125,176	190,730	186,627	183,187
Female	142,080	132,940	191,707	185,327	183,250
WHITE ONLY	247,334	235,025	341,366	331,435	327,486
Male	117,531	113,332	169,317	165,594	162,845
Female	129,803	121,693	172,049	165,841	164,641
ALL OTHER ^a	25,259	23,091	41,071	40,519	38,951
Male	12,982	11,844	21,413	21,033	20,342
Female	12,277	11,247	19,658	19,486	18,609
BLACK ONLY	23,519	21,429	NC ^b	NC	NC
Male	11,866	10,834	NC	NC	NC
Female	11,653	1,0595	NC	NC	NC

^aIncludes blacks.

^bNot coded.

Table 12-15
Race and Sex Breakdown for "Ages 5-54" Need Category
(Deaths)

RACE/SEX	YEAR				
	1980	1979	1978	1977	1976
ALL RACES	14,206	14,066	24,146	24,319	23,918
Male	10,275	10,307	17,619	17,538	17,272
Female	3,931	3,759	6,527	6,781	6,646
WHITE ONLY	10,950	11,077	18,285	18,389	18,209
Male	8,115	8,375	13,861	13,815	13,649
Female	2,835	2,702	4,424	4,574	4,560
ALL OTHER ^a	3,256	2,989	5,861	5,930	5,709
Male	2,160	1,932	3,758	3,723	3,623
Female	1,096	1,057	2,103	2,207	2,086
BLACK ONLY	3,030	2,796	NC ^b	NC	NC
Male	2,000	1,791	NC	NC	NC
Female	1,030	1,005	NC	NC	NC

^aIncludes blacks.

^bNot coded.

Table 12-16
Race and Sex Breakdown for "Ages 10-54" Need Category
(Deaths)

<u>RACE/SEX</u>	<u>YEAR</u>				
	<u>1980</u>	<u>1979</u>	<u>1978</u>	<u>1977</u>	<u>1976</u>
ALL RACES	14,152	14,025	24,083	24,266	23,864
Male	10,249	10,287	17,585	17,509	17,242
Female	3,903	3,738	6,498	6,757	6,622
WHITE ONLY	10,911	11,046	18,242	18,354	18,166
Male	8,094	8,357	13,837	13,792	13,625
Female	2,817	2,689	4,405	4,562	4,541
ALL OTHER ^a	3,241	2,979	5,841	5,912	5,698
Male	2,155	1,930	3,748	3,717	3,617
Female	1,086	1,049	2,093	2,195	2,081
BLACK ONLY	3,016	2,787	NC ^b	NC	NC
Male	1,995	1,789	NC	NC	NC
Female	1,021	998	NC	NC	NC

^aIncludes blacks.

^bNot coded.

Table 12-17
Race and Sex Breakdown for "Ages 5-49" Need Category
(Deaths)

<u>RACE/SEX</u>	<u>YEAR</u>				
	<u>1980</u>	<u>1979</u>	<u>1978</u>	<u>1977</u>	<u>1976</u>
ALL RACES	7,909	7,714	12,749	12,727	12,558
Male	5,705	5,619	9,247	9,137	8,983
Female	2,204	2,095	3,502	3,590	3,575
WHITE ONLY	5,814	5,858	9,313	9,264	9,301
Male	4,303	4,416	7,051	6,945	6,907
Female	1,511	1,442	2,262	2,319	2,394
ALL OTHER ^a	2,095	1,856	3,436	3,463	3,257
Male	1,402	1,203	2,196	2,192	2,076
Female	693	653	1,240	1,271	1,181
BLACK ONLY	1,946	1,734	NC ^b	NC	NC
Male	1,297	1,119	NC	NC	NC
Female	649	615	NC	NC	NC

^aIncludes blacks.

^bNot coded.

Table 12-18
Race and Sex Breakdown for "Ages 10-49" Need Category
(Deaths)

<u>RACE/SEX</u>	<u>YEAR</u>				
	<u>1980</u>	<u>1979</u>	<u>1978</u>	<u>1977</u>	<u>1976</u>
ALL RACES	7,855	7,673	12,686	12,674	12,504
Male	5,679	5,599	9,213	9,108	8,953
Female	2,176	2,074	3,473	3,566	3,551
WHITE ONLY	5,775	5,827	9,270	9,229	9,258
Male	4,282	4,398	7,027	6,922	6,883
Female	1,493	1,429	2,243	2,307	2,375
ALL OTHER ^a	2,080	1,846	3,416	3,445	3,246
Male	1,397	1,201	2,186	2,186	2,070
Female	683	645	1,230	1,259	1,176
BLACK ONLY	1,932	1,725	NC ^b	NC	NC
Male	1,292	1,117	NC	NC	NC
Female	640	608	NC	NC	NC

^aIncludes blacks.

^bNot coded.

12-16	Ages 10-54
12-17	Ages 5-49
12-18	Ages 10-49

Of these tables, Table 12-16 contains the data pertaining to the need category appropriate to the current patient selection criteria. Once again, there is considerable variability in the need estimates depending upon which coding system (ICDA.8 or ICD.9.CM) was used to code the data. As noted above, the best estimates within these tables are those for 1979 and 1980.

An examination of Table 12-16 provides an approximate sex and race distribution of people who died with an underlying cause of death appropriate to heart transplantation, and were of an acceptable age. As shown here, in 1980, the approximate race and sex distribution of potential heart transplant candidates would be as follows:

.	8094	White males
.	2817	White females
.	2155	All other males (including blacks)
.	1086	All other females (including blacks)
.	1995	Black males only
.	1021	Black females only

The total number of potential candidates for heart transplantation, including those where age was not stated on the death certificate, would be 14,152, of which 10,249 would be male and 3,903, female.

More detailed data on the age, sex, and race breakdown of potential heart transplant recipients between the ages of 10 and 54 for 1980, 1979, 1978, 1977, and 1976 are provided in Tables 12-19, 12-20, 12-21, 12-22, and 12-23, respectively. These tables differ from Tables 12-14 through 12-18 in that they also contain detailed age data. Such detailed data for all need categories of patients are provided in Appendixes 12-A through 12-E. Simply too much data are contained in these tables to elaborate further upon them in the text. It is clear, however, that with increasing age the number of potential candidates for heart transplantation also increases.

2. REFINED NEED ESTIMATES

As noted at the outset of this chapter, it is possible to use some data published by the Stanford heart transplant team to produce more refined estimates of need. The published data can essentially be used to translate the estimates of the number of potential heart transplant recipients into an estimate of what might be the actual number of recipients. In doing so, rather than producing a large number of tables, only need data for 1980 will be used. The need category of interest is people between the ages of 10 and 54 only.

In 1979, Baumgartner et al., published the data contained in Table 12-24 on the referral experience for a one-year period of the Stanford heart transplant team. As shown in this table, the majority of the people referred for a heart transplant are turned down, and of those accepted, about half actually receive a transplant. By excluding persons who are rejected for a transplant because they are too old, it is possible to adjust the data in Table 12-24 and apply it to the need data for persons 10-54 contained in this Chapter.

Table 12-19
 ALL DEATHS IN THE UNITED STATES, 1980
 AGES 10-54 ONLY
 SELECTED CONDITIONS FOR WHICH HEART TRANSPLANTATION IS INDICATED

<u>AGE</u>	<u>ALL RACES</u>		<u>WHITE</u>		<u>ALL OTHER</u>		<u>BLACK ONLY</u>	
	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>
0-4								
5-9								
10-14	47	32	38	21	9	11	8	11
15-19	126	58	75	36	51	22	46	19
20-24	190	82	114	58	76	24	71	20
25-29	268	110	187	72	81	38	72	33
30-34	427	163	285	98	142	65	136	58
35-39	772	284	544	190	228	94	200	89
40-44	1345	528	1046	363	299	165	283	154
45-49	2462	894	1970	635	492	259	458	252
50-54	4570	1727	3812	1324	758	403	703	381
55-59								
60-64								
65-69								
70-74								
75 up								
Not Stated	42	25	23	20	19	5	18	4
TOTALS	10249	3903	8094	2817	2155	1086	1995	1022
SUM BY RACE	14152		10911		3241		3016	

Table 12-20
ALL DEATHS IN THE UNITED STATES, 1979
AGES 10-54 ONLY
SELECTED CONDITIONS FOR WHICH HEART TRANSPLANTATION IS INDICATED

<u>AGE</u>	<u>ALL RACES</u>		<u>WHITE</u>		<u>ALL OTHER</u>		<u>BLACK ONLY</u>	
	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>
0-4								
5-9								
10-14	32	32	23	23	9	9	8	7
15-19	104	43	66	30	38	13	37	13
20-24	174	76	130	50	44	26	41	25
25-29	250	119	179	64	71	55	65	49
30-34	415	174	317	113	98	61	85	58
35-39	711	267	527	186	184	81	169	76
40-44	1347	493	1056	343	291	150	269	139
45-49	2533	858	2078	615	455	243	433	234
50-54	4688	1664	3959	1260	729	404	672	390
55-59								
60-64								
65-69								
70-74								
75 up								
Not Stated	33	12	22	6	11	7	10	7
TOTALS	10287	3738	8357	2689	1930	1049	1789	998
SUM BY RACE	14025		11047		2979		2787	

Table 12-21
ALL DEATHS IN THE UNITED STATES, 1978
AGES 10-54 ONLY
SELECTED CONDITIONS FOR WHICH HEART TRANSPLANTATION IS INDICATED

<u>AGE</u>	<u>ALL RACES</u>		<u>WHITE</u>		<u>ALL OTHER</u>		<u>BLACK ONLY</u>	
	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>
0-4								
5-9								
10-14	61	44	44	29	17	15		
15-19	127	73	92	49	35	24		
20-24	205	107	144	66	61	41		
25-29	304	158	217	93	87	65		
30-34	575	225	406	145	169	80		
35-39	1176	390	875	262	301	128		
40-44	2199	821	1648	504	551	317		
45-49	4477	1602	3536	1060	941	542		
50-54	8372	3025	6810	2162	1562	863		
55-59								
60-64								
65-69								
70-74								
75 up								
Not Stated	89	53	65	35	24	18		
TOTALS	17585	6498	13837	4405	3748	2093	0	0
SUM BY RACE	24083		18242		5841		0	

Table 12-22
ALL DEATHS IN THE UNITED STATES, 1977
AGES 10-54 ONLY
SELECTED CONDITIONS FOR WHICH HEART TRANSPLANTATION IS INDICATED

<u>AGE</u>	<u>ALL RACES</u>		<u>WHITE</u>		<u>ALL OTHER</u>		<u>BLACK ONLY</u>	
	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>
0-4								
5-9								
10-14	44	41	35	29	9	12		
15-19	132	56	88	44	44	12		
20-24	181	118	123	76	48	42		
25-29	310	171	205	108	105	63		
30-34	566	228	416	154	150	74		
35-39	1062	407	771	244	291	163		
40-44	2273	870	1721	553	552	317		
45-49	4496	1632	3530	1073	966	559		
50-54	8401	3191	6870	2255	1531	936		
55-59								
60-64								
65-69								
70-74								
75 up								
Not Stated	44	43	33	26	11	17		
TOTALS	17509	6757	13792	4562	3717	2195	0	0
SUM BY RACE	24266		18354		5912		0	

Table 12-23
 ALL DEATHS IN THE UNITED STATES, 1976
 AGES 10-54 ONLY
 SELECTED CONDITIONS FOR WHICH HEART TRANSPLANTATION IS INDICATED

<u>AGE</u>	<u>ALL RACES</u>		<u>WHITE</u>		<u>ALL OTHER</u>		<u>BLACK ONLY</u>	
	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>
0-4								
5-9								
10-14	59	44	45	35	14	9		
15-19	135	75	90	41	45	34		
20-24	195	115	144	72	51	43		
25-29	301	152	207	99	94	53		
30-34	524	239	364	154	160	85		
35-39	981	411	676	273	305	138		
40-44	2123	812	1639	523	484	289		
45-49	4600	1664	3697	1152	903	512		
50-54	8289	3071	6742	2166	1547	905		
55-59								
60-64								
65-69								
70-74								
75 up								
Not Stated	35	39	21	26	14	13		
TOTALS	17242	6622	13625	4541	3617	2081	0	0
SUM BY RACE	23864		18166		5698		0	

Table 12-24
Referrals For Cardiac Transplantation During A One-Year Period:
Stanford University Medical Center

<u>EVALUATION STATUS</u>	<u>NUMBER OF PATIENTS</u>
Initial evaluation	234
Rejected	188
Too old	66
Inadequate finances	10
Premature referral	7
Psychosocial problems	24
Other medical contraindications	45
Died while under consideration	32
Referred elsewhere for transplant	4
Further evaluation	46
Rejected	23
Other therapy attempted	14
Died during evaluation	6
Psychosocial problems	2
Other medical contraindications	1
Accepted	23
Died while awaiting donor	3
Deselected	0
Transplanted	14
Waiting	6

SOURCE: Baumgartner et al., 1979.

In 1980, it was estimated that about 14,100 people died in the U.S. with the proper underlying cause of death and of the proper age to make them suitable candidates for a heart transplant. Earlier in this chapter it was noted that the mortality data available for this analysis did not include data on all the variables for which persons could be excluded as heart transplant candidates. Assuming that the referral experience of the Stanford cardiac transplant program is typical of the experience of other programs in the U.S., and after making necessary adjustments in the data contained in Table 12-24 (for example, of the 14,100 persons, none would be excluded for being too old), it is estimated that, upon further evaluation, only 1,932 or 13.7 percent of the 14,100 people who died, had they been referred for a transplant prior to death, would have been accepted for a transplant. Moreover, of these 1,932 patients, it is estimated that 1,177 or 60.9 percent of them would actually receive a heart transplant. The remaining patients would have died awaiting a donor or would have continued to await the availability of one.

Based on the foregoing, it is evident that the number of people who are accepted for a heart transplant and then actually receive one is much smaller than the number of people who are initially considered as candidates. If, however, patient selection criteria are relaxed, the net result will be a substantial increase in the number of candidates for cardiac transplantation.

D. CONCLUSION

As demonstrated in this chapter, it is possible to produce estimates of the need for heart transplantation. These estimates are not, however, infallible. In this regard there are several limitations to this analysis that must be kept in mind when using these estimates to predict future need, costs, and the number of transplants to be performed. They are as follows:

- . in the gross estimates of need it has been impossible to take into consideration all known contraindications to heart transplantation, thus, the estimates, as shown by the refined estimation procedure, may be high
- . the refined estimates assume that the Stanford referral experience may generalize to all transplant centers, and this may not be true
- . if patient selection criteria are modified in any way the estimates of need will change
- . an increase in the number of heart transplant centers may create increased demand for heart transplantation although such demand should not exceed the need estimates.

Even with these limitations, it must be recognized that no other data are currently available to address the issue of need in a more suitable and precise manner than those used here.

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APPENDIX 12-A

DETAILED MORTALITY TABLES FOR 1980

Table 12-A-1
ALL DEATHS IN THE UNITED STATES, 1980
MALIGNANT NEOPLASM OF THE HEART
ICD.9.CM 164.1

AGE	ALL RACES		WHITE		ALL OTHER		BLACK ONLY	
	MALE	FEMALE	MALE	FEMALE	MALE	FEMALE	MALE	FEMALE
0-4	1	1	1	1	0	0	0	0
5-9	0	0	0	0	0	0	0	0
10-14	0	0	0	0	0	0	0	0
15-19	2	0	2	0	0	0	0	0
20-24	1	0	1	0	0	0	0	0
25-29	0	0	0	0	0	0	0	0
30-34	2	0	2	0	0	0	0	0
35-39	0	1	0	1	0	0	0	0
40-44	0	1	0	1	0	0	0	0
45-49	3	1	2	0	1	1	1	1
50-54	5	1	5	1	0	0	0	0
55-59	1	2	1	2	0	0	0	0
60-64	5	2	5	2	0	0	0	0
65-69	6	1	6	1	0	0	0	0
70-74	0	3	0	3	0	0	0	0
75 up	0	4	0	4	0	0	0	0
Not Stated	0	0	0	0	0	0	0	0
TOTALS	26	17	25	16	1	1	1	1
SUM BY RACE	43		41		2		2	

Table 12-A-2
ALL DEATHS IN THE UNITED STATES, 1980
MITRAL STENOSIS
ICD.9.CM 394.0

AGE	ALL RACES		WHITE		ALL OTHER		BLACK ONLY	
	MALE	FEMALE	MALE	FEMALE	MALE	FEMALE	MALE	FEMALE
0-4	0	0	0	0	0	0	0	0
5-9	1	1	1	1	0	0	0	0
10-14	1	0	1	0	0	0	0	0
15-19	2	1	0	0	2	1	1	1
20-24	4	6	3	4	1	2	1	2
25-29	1	2	1	2	0	0	0	0
30-34	7	10	6	5	1	5	1	4
35-39	7	10	5	9	2	1	2	1
40-44	4	22	4	20	0	2	0	2
45-49	15	30	12	25	3	5	3	5
50-54	21	57	20	53	1	4	1	4
55-59	29	86	24	78	5	8	2	7
60-64	34	106	33	102	1	4	1	4
65-69	25	126	23	122	2	4	1	3
70-74	45	135	42	130	3	5	3	3
75 up	58	231	58	225	0	6	0	6
Not Stated	0	0	0	0	0	0	0	0
TOTALS	254	823	233	776	21	47	16	42
SUM BY RACE	1077		1009		68		58	

Table 12-A-3
ALL DEATHS IN THE UNITED STATES, 1980
RHEUMATIC MITRAL INSUFFICIENCY
ICD.9.CM 394.1

<u>AGE</u>	<u>ALL RACES</u>		<u>WHITE</u>		<u>ALL OTHER</u>		<u>BLACK ONLY</u>	
	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>
0-4	0	0	0	0	0	0	0	0
5-9	0	0	0	0	0	0	0	0
10-14	1	0	1	0	0	0	0	0
15-19	0	2	0	1	0	1	0	1
20-24	1	0	0	0	1	0	0	0
25-29	0	3	0	1	0	2	0	2
30-34	0	2	0	0	0	2	0	2
35-39	5	2	1	1	4	1	4	1
40-44	2	4	2	2	0	2	0	1
45-49	4	6	4	3	0	3	0	3
50-54	5	4	5	2	0	2	0	2
55-59	12	16	12	13	0	3	0	3
60-64	10	23	8	19	2	4	1	4
65-69	24	33	22	31	2	2	2	1
70-74	17	36	17	35	0	1	0	1
75 up	40	84	40	82	0	2	0	1
Not Stated	0	0	0	0	0	0	0	0
TOTALS	121	215	112	190	9	25	7	22
SUM BY RACE	336		302		34		29	

Table 12-A-4
ALL DEATHS IN THE UNITED STATES, 1980
MITRAL STENOSIS WITH INSUFFICIENCY
ICD.9.CM 394.2

AGE	ALL RACES		WHITE		ALL OTHER		BLACK ONLY	
	MALE	FEMALE	MALE	FEMALE	MALE	FEMALE	MALE	FEMALE
0-4	0	1	0	1	0	0	0	0
5-9	0	0	0	0	0	0	0	0
10-14	0	1	0	0	0	1	0	1
15-19	0	0	0	0	0	0	0	0
20-24	0	0	0	0	0	0	0	0
25-29	0	1	0	0	0	1	0	0
30-34	2	1	2	1	0	0	0	0
35-39	0	2	0	1	0	1	0	1
40-44	0	2	0	2	0	0	0	0
45-49	1	3	1	3	0	0	0	0
50-54	4	3	3	2	1	1	1	1
55-59	4	13	4	12	0	1	0	1
60-64	7	15	7	15	0	0	0	0
65-69	8	21	8	20	0	1	0	1
70-74	10	36	9	36	1	0	1	0
75 up	10	43	10	39	0	4	0	4
Not Stated	0	0	0	0	0	0	0	0
TOTALS	46	142	44	132	2	10	2	9
SUM BY RACE	188		176		12		11	

Table 12-A-5
ALL DEATHS IN THE UNITED STATES, 1980
OTHER AND UNSPECIFIED MITRAL VALVE DISEASES
ICD.9.CM 394.9

AGE	ALL RACES		WHITE		ALL OTHER		BLACK ONLY	
	MALE	FEMALE	MALE	FEMALE	MALE	FEMALE	MALE	FEMALE
0-4	0	0	0	0	0	0	0	0
5-9	0	1	0	1	0	0	0	0
10-14	2	3	1	0	1	3	1	3
15-19	4	5	3	2	1	3	1	2
20-24	7	7	3	5	4	2	4	1
25-29	3	8	1	5	2	3	2	2
30-34	7	10	6	6	1	4	1	3
35-39	7	24	7	19	0	5	0	4
40-44	21	30	17	26	4	4	3	4
45-49	25	58	22	48	3	10	3	9
50-54	53	57	49	49	4	8	4	7
55-59	52	112	47	104	5	8	3	8
60-64	84	128	78	122	6	6	6	6
65-69	98	186	90	176	8	10	7	7
70-74	55	142	53	139	2	3	2	2
75 up	80	208	78	206	2	2	2	2
Not Stated	0	0	0	0	0	0	0	0
TOTALS	498	979	455	908	43	71	39	60
SUM BY RACE	1477		1363		114		99	

Table 12-A-6
ALL DEATHS IN THE UNITED STATES, 1980
RHEUMATIC AORTIC STENOSIS
ICD.9.CM 395.0

AGE	ALL RACES		WHITE		ALL OTHER		BLACK ONLY	
	MALE	FEMALE	MALE	FEMALE	MALE	FEMALE	MALE	FEMALE
0-4	0	0	0	0	0	0	0	0
5-9	0	0	0	0	0	0	0	0
10-14	0	0	0	0	0	0	0	0
15-19	0	1	0	1	0	0	0	0
20-24	1	0	1	0	0	0	0	0
25-29	1	2	1	2	0	0	0	0
30-34	2	0	2	0	0	0	0	0
35-39	4	0	4	0	0	0	0	0
40-44	0	0	0	0	0	0	0	0
45-49	3	1	2	1	1	0	1	0
50-54	4	2	4	2	0	0	0	0
55-59	7	7	7	6	0	1	0	1
60-64	15	9	14	9	1	0	1	0
65-69	16	10	15	9	1	1	1	1
70-74	13	13	13	13	0	0	0	0
75 up	26	37	25	34	1	3	1	2
Not Stated	0	0	0	0	0	0	0	0
TOTALS	92	82	88	77	4	5	4	4
SUM BY RACE	174		165		9		8	

Table 12-A-7
ALL DEATHS IN THE UNITED STATES, 1980
RHEUMATIC AORTIC INSUFFICIENCY
ICD.9.CM 395.1

AGE	ALL RACES		WHITE		ALL OTHER		BLACK ONLY	
	MALE	FEMALE	MALE	FEMALE	MALE	FEMALE	MALE	FEMALE
0-4	0	0	0	0	0	0	0	0
5-9	0	0	0	0	0	0	0	0
10-14	0	0	0	0	0	0	0	0
15-19	0	0	0	0	0	0	0	0
20-24	2	0	2	0	0	0	0	0
25-29	0	0	0	0	0	0	0	0
30-34	1	0	1	0	0	0	0	0
35-39	0	0	0	0	0	0	0	0
40-44	3	0	3	0	0	0	0	0
45-49	2	0	2	0	0	0	0	0
50-54	2	1	2	1	0	0	0	0
55-59	10	0	9	0	1	0	1	0
60-64	2	0	1	0	1	0	1	0
65-69	10	3	10	3	0	0	0	0
70-74	8	4	8	4	0	0	0	0
75 up	14	14	13	12	1	2	1	2
Not Stated	0	0	0	0	0	0	0	0
TOTALS	54	22	51	20	3	2	3	2
SUM BY RACE	76		71		5		5	

Table 12-A-8
ALL DEATHS IN THE UNITED STATES, 1980
RHEUMATIC AORTIC STENOSIS WITH INSUFFICIENCY
ICD.9.CM 395.2

AGE	ALL RACES		WHITE		ALL OTHER		BLACK ONLY	
	MALE	FEMALE	MALE	FEMALE	MALE	FEMALE	MALE	FEMALE
0-4	0	0	0	0	0	0	0	0
5-9	0	0	0	0	0	0	0	0
10-14	0	0	0	0	0	0	0	0
15-19	0	0	0	0	0	0	0	0
20-24	0	0	0	0	0	0	0	0
25-29	0	0	0	0	0	0	0	0
30-34	1	1	1	0	0	1	0	1
35-39	0	0	0	0	0	0	0	0
40-44	2	0	2	0	0	0	0	0
45-49	1	1	1	1	0	0	0	0
50-54	4	0	4	0	0	0	0	0
55-59	2	2	2	2	0	0	0	0
60-64	2	3	2	2	0	1	0	1
65-69	6	2	6	2	0	0	0	0
70-74	5	5	4	5	1	0	1	0
75 up	11	17	11	17	0	0	0	0
Not Stated	0	0	0	0	0	0	0	0
TOTALS	34	31	33	29	1	2	1	2
SUM BY RACE	65		62		3		3	

Table 12-A-9
ALL DEATHS IN THE UNITED STATES, 1980
OTHER AND UNSPECIFIED RHEUMATIC AORTIC DISEASES
ICD.9.CM 395.9

AGE	ALL RACES		WHITE		ALL OTHER		BLACK ONLY	
	MALE	FEMALE	MALE	FEMALE	MALE	FEMALE	MALE	FEMALE
0-4	0	0	0	0	0	0	0	0
5-9	0	0	0	0	0	0	0	0
10-14	0	0	0	0	0	0	0	0
15-19	2	0	1	0	1	0	1	0
20-24	0	0	0	0	0	0	0	0
25-29	4	1	3	0	1	1	1	0
30-34	4	1	4	1	0	0	0	0
35-39	0	2	0	1	0	1	0	1
40-44	4	1	3	0	1	1	1	1
45-49	4	1	3	1	1	0	1	0
50-54	8	3	8	3	0	0	0	0
55-59	9	3	8	3	1	0	1	0
60-64	8	4	8	4	0	0	0	0
65-69	10	10	10	10	0	0	0	0
70-74	8	5	8	4	0	1	0	1
75 up	10	14	10	13	0	1	0	1
Not Stated	0	0	0	0	0	0	0	0
TOTALS	71	45	66	40	5	5	5	4
SUM BY RACE	116		106		10		9	

Table 12-A-8
ALL DEATHS IN THE UNITED STATES, 1980
RHEUMATIC AORTIC STENOSIS WITH INSUFFICIENCY
ICD.9.CM 395.2

AGE	ALL RACES		WHITE		ALL OTHER		BLACK ONLY	
	MALE	FEMALE	MALE	FEMALE	MALE	FEMALE	MALE	FEMALE
0-4	0	0	0	0	0	0	0	0
5-9	0	0	0	0	0	0	0	0
10-14	0	0	0	0	0	0	0	0
15-19	0	0	0	0	0	0	0	0
20-24	0	0	0	0	0	0	0	0
25-29	0	0	0	0	0	0	0	0
30-34	1	1	1	0	0	1	0	1
35-39	0	0	0	0	0	0	0	0
40-44	2	0	2	0	0	0	0	0
45-49	1	1	1	1	0	0	0	0
50-54	4	0	4	0	0	0	0	0
55-59	2	2	2	2	0	0	0	0
60-64	2	3	2	2	0	1	0	1
65-69	6	2	6	2	0	0	0	0
70-74	5	5	4	5	1	0	1	0
75 up	11	17	11	17	0	0	0	0
Not Stated	0	0	0	0	0	0	0	0
TOTALS	34	31	33	29	1	2	1	2
SUM BY RACE	65		62		3		3	

Table 12-A-9
ALL DEATHS IN THE UNITED STATES, 1980
OTHER AND UNSPECIFIED RHEUMATIC AORTIC DISEASES
ICD,9.CM 395.9

<u>AGE</u>	<u>ALL RACES</u>		<u>WHITE</u>		<u>ALL OTHER</u>		<u>BLACK ONLY</u>	
	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>
0-4	0	0	0	0	0	0	0	0
5-9	0	0	0	0	0	0	0	0
10-14	0	0	0	0	0	0	0	0
15-19	2	0	1	0	1	0	1	0
20-24	0	0	0	0	0	0	0	0
25-29	4	1	3	0	1	1	1	0
30-34	4	1	4	1	0	0	0	0
35-39	0	2	0	1	0	1	0	1
40-44	4	1	3	0	1	1	1	1
45-49	4	1	3	1	1	0	1	0
50-54	8	3	8	3	0	0	0	0
55-59	9	3	8	3	1	0	1	0
60-64	8	4	8	4	0	0	0	0
65-69	10	10	10	10	0	0	0	0
70-74	8	5	8	4	0	1	0	1
75 up	10	14	10	13	0	1	0	1
Not Stated	0	0	0	0	0	0	0	0
TOTALS	71	45	66	40	5	5	5	4
SUM BY RACE	116		106		10		9	

Table 12-A-10
ALL DEATHS IN THE UNITED STATES, 1980
DISEASES OF MITRAL AND AORTIC VALVES
ICD.9.CM 396

AGE	ALL RACES		WHITE		ALL OTHER		BLACK ONLY	
	MALE	FEMALE	MALE	FEMALE	MALE	FEMALE	MALE	FEMALE
0-4	0	2	0	2	0	0	0	0
5-9	0	0	0	0	0	0	0	0
10-14	3	0	1	0	2	0	1	0
15-19	3	0	2	0	1	0	1	0
20-24	5	1	1	0	4	1	4	0
25-29	5	2	2	2	3	0	3	0
30-34	5	1	3	0	2	1	2	0
35-39	10	14	10	11	0	3	0	3
40-44	16	10	12	8	4	2	3	1
45-49	22	21	18	19	4	2	4	2
50-54	31	42	25	38	6	4	5	4
55-59	41	37	38	36	3	1	3	1
60-64	51	56	49	46	2	10	1	10
65-69	46	81	44	78	2	3	1	3
70-74	50	99	48	96	2	3	1	3
75 up	108	228	102	214	6	14	6	12
Not Stated	0	0	0	0	0	0	0	0
TOTALS	396	594	355	550	41	44	35	39
SUM BY RACE	990		905		85		74	

Table 12-A-11
ALL DEATHS IN THE UNITED STATES, 1980
RHEUMATIC MYOCARDITIS
ICD.9.CM 398.0

AGE	ALL RACES		WHITE		ALL OTHER		BLACK ONLY	
	MALE	FEMALE	MALE	FEMALE	MALE	FEMALE	MALE	FEMALE
0-4	0	1	0	0	0	1	0	1
5-9	0	0	0	0	0	0	0	0
10-14	0	0	0	0	0	0	0	0
15-19	0	0	0	0	0	0	0	0
20-24	0	0	0	0	0	0	0	0
25-29	2	0	1	0	1	0	1	0
30-34	0	1	0	1	0	0	0	0
35-39	0	0	0	0	0	0	0	0
40-44	2	0	1	0	1	0	1	0
45-49	0	0	0	0	0	0	0	0
50-54	0	2	0	1	0	1	0	0
55-59	1	0	1	0	0	0	0	0
60-64	1	1	1	1	0	0	0	0
65-69	0	3	0	3	0	0	0	0
70-74	1	0	1	0	0	0	0	0
75 up	0	0	0	0	0	0	0	0
Not Stated	0	0	0	0	0	0	0	0
TOTALS	7	8	5	6	2	2	2	1
SUM BY RACE	15		11		4		3	

Table 12-A-12
ALL DEATHS IN THE UNITED STATES, 1980
OTHER AND UNSPECIFIED RHEUMATIC HEART DISEASES
ICD.9.CM 395.9

<u>AGE</u>	<u>ALL RACES</u>		<u>WHITE</u>		<u>ALL OTHER</u>		<u>BLACK ONLY</u>	
	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>
0-4	0	2	0	2	0	0	0	0
5-9	0	3	0	1	0	2	0	2
10-14	0	1	0	0	0	1	0	1
15-19	3	4	0	2	3	2	3	2
20-24	8	5	2	3	6	2	5	1
25-29	5	14	2	8	3	6	2	6
30-34	10	10	5	4	5	6	4	4
35-39	18	23	16	15	2	8	2	5
40-44	21	36	17	26	4	10	2	9
45-49	35	70	35	54	0	16	0	15
50-54	60	93	48	88	12	5	10	5
55-59	92	168	85	151	7	17	7	16
60-64	98	194	88	180	10	14	7	11
65-69	145	269	139	250	6	19	6	18
70-74	128	312	123	296	5	16	5	15
75 up	202	624	197	605	5	19	5	17
Not Stated	0	0	0	0	0	0	0	0
TOTALS	825	1828	757	1685	68	143	58	127
SUM BY RACE	2653		2442		211		185	

Table 12-A-13
ALL DEATHS IN THE UNITED STATES, 1980
CORONARY ATHEROSCLEROSIS
ICD.9.CM 414.0

AGE	ALL RACES		WHITE		ALL OTHER		BLACK ONLY	
	MALE	FEMALE	MALE	FEMALE	MALE	FEMALE	MALE	FEMALE
0-4	1	3	1	1	0	2	0	2
5-9	1	3	1	3	0	0	0	0
10-14	0	0	0	0	0	0	0	0
15-19	4	1	2	0	2	1	2	1
20-24	20	5	12	4	8	1	8	1
25-29	53	8	39	5	14	3	13	3
30-34	175	33	131	23	44	10	42	9
35-39	420	87	324	60	96	27	80	27
40-44	878	238	711	163	167	75	156	71
45-49	1691	432	1379	198	312	134	286	129
50-54	3286	996	2752	751	534	245	490	233
55-59	5705	2019	4926	1571	779	448	715	432
60-64	7896	3654	6938	2974	958	680	891	661
65-69	11503	6341	10241	5381	1262	960	1193	927
70-74	14477	10694	13145	9401	1332	1293	1209	1244
75 up	58030	90238	54026	84961	4004	5277	3577	4963
Not Stated	36	19	20	16	16	3	15	3
TOTALS	104176	114771	94648	105612	9528	9159	8677	8706
SUM BY RACE	218947		200260		18687		17383	

Table 12-A-14
ALL DEATHS IN THE UNITED STATES, 1980
ANEURYSM OF HEART
ICD.9.CM 414.1

AGE	ALL RACES		WHITE		ALL OTHER		BLACK ONLY	
	MALE	FEMALE	MALE	FEMALE	MALE	FEMALE	MALE	FEMALE
0-4	0	0	0	0	0	0	0	0
5-9	1	0	1	0	0	0	0	0
10-14	0	0	0	0	0	0	0	0
15-19	0	1	0	1	0	0	0	0
20-24	0	0	0	0	0	0	0	0
25-29	0	2	0	2	0	0	0	0
30-34	4	0	3	0	1	0	0	0
35-39	4	4	4	4	0	0	0	0
40-44	6	0	6	0	0	0	0	0
45-49	15	5	13	5	2	0	1	0
50-54	27	6	26	6	1	0	1	0
55-59	55	14	53	14	2	0	2	0
60-64	62	19	61	13	1	6	1	6
65-69	43	18	41	17	2	1	1	1
70-74	46	25	44	22	2	3	2	3
75 up	66	54	62	48	4	6	4	4
Not Stated	0	0	0	0	0	0	0	0
TOTALS	329	148	314	132	15	16	12	14
SUM BY RACE	477		446		31		26	

Table 12-A-15
ALL DEATHS IN THE UNITED STATES, 1980
OTHER SPECIFIED FORMS OF CHRONIC ISCHEMIC HEART DISEASE
ICD.9.CM 414.8

AGE	ALL RACES		WHITE		ALL OTHER		BLACK ONLY	
	MALE	FEMALE	MALE	FEMALE	MALE	FEMALE	MALE	FEMALE
0-4	1	1	1	1	0	0	0	0
5-9	0	0	0	0	0	0	0	0
10-14	0	0	0	0	0	0	0	0
15-19	0	1	0	1	0	0	0	0
20-24	0	2	0	1	0	1	0	1
25-29	2	1	1	1	1	0	1	0
30-34	8	0	5	0	3	0	2	0
35-39	16	3	14	3	2	0	2	0
40-44	32	7	27	5	5	2	5	2
45-49	81	9	69	9	12	0	10	0
50-54	133	37	121	30	12	7	10	6
55-59	207	67	189	58	18	9	16	9
60-64	286	91	262	79	24	12	19	11
65-69	324	172	305	147	19	25	17	25
70-74	392	215	360	196	32	19	25	17
75 up	778	818	733	778	45	40	40	38
Not Stated	0	0	0	0	0	0	0	0
TOTALS	2260	1424	2087	1309	173	115	147	109
SUM BY RACE	3684		3396		288		256	

Table 12-A-16
ALL DEATHS IN THE UNITED STATES, 1980
AORTIC VALVE DISORDERS
ICD.9.CM 424.1

<u>AGE</u>	<u>ALL RACES</u>		<u>WHITE</u>		<u>ALL OTHER</u>		<u>BLACK ONLY</u>	
	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>
0-4	6	2	6	2	0	0	0	0
5-9	5	0	5	0	0	0	0	0
10-14	4	0	4	0	0	0	0	0
15-19	12	1	9	1	3	0	3	0
20-24	15	2	12	2	3	0	3	0
25-29	17	3	11	2	6	1	5	0
30-34	16	2	11	2	5	0	5	0
35-39	28	6	25	3	3	3	3	3
40-44	27	15	26	13	1	2	1	2
45-49	61	18	48	14	13	4	13	4
50-54	93	24	82	15	11	9	11	9
55-59	201	59	183	52	18	7	14	7
60-64	283	95	253	87	30	8	28	6
65-69	342	194	310	169	32	25	28	24
70-74	434	293	404	273	30	20	26	19
75 up	1110	1353	1040	1267	70	86	59	77
Not Stated	0	0	0	0	0	0	0	0
TOTALS	2654	2067	2429	1902	225	165	199	151
SUM BY RACE	4721		4331		390		350	

Table 12-A-17
ALL DEATHS IN THE UNITED STATES, 1980
ENDOMYOCARDIAL FIBROSIS
ICD.9.CM 425.0

AGE	ALL RACES		WHITE		ALL OTHER		BLACK ONLY	
	MALE	FEMALE	MALE	FEMALE	MALE	FEMALE	MALE	FEMALE
0-4	0	0	0	0	0	0	0	0
5-9	0	0	0	0	0	0	0	0
10-14	0	0	0	0	0	0	0	0
15-19	0	0	0	0	0	0	0	0
20-24	0	0	0	0	0	0	0	0
25-29	0	1	0	1	0	0	0	0
30-34	0	0	0	0	0	0	0	0
35-39	0	0	0	0	0	0	0	0
40-44	0	0	0	0	0	0	0	0
45-49	0	1	0	1	0	0	0	0
50-54	0	0	0	0	0	0	0	0
55-59	0	0	0	0	0	0	0	0
60-64	0	0	0	0	0	0	0	0
65-69	0	0	0	0	0	0	0	0
70-74	0	2	0	2	0	0	0	0
75 up	1	0	1	0	0	0	0	0
Not Stated	0	0	0	0	0	0	0	0
TOTALS	1	4	1	4	0	0	0	0
SUM BY RACE	5		5		0		0	

Table 12-A-18
ALL DEATHS IN THE UNITED STATES, 1980
OTHER PRIMARY CARDIOMYOPATHIES
ICD.9.CM 425.4

AGE	ALL RACES		WHITE		ALL OTHER		BLACK ONLY	
	MALE	FEMALE	MALE	FEMALE	MALE	FEMALE	MALE	FEMALE
0-4	46	35	37	27	9	8	8	6
5-9	8	7	6	5	2	2	2	2
10-14	18	11	14	9	4	2	4	2
15-19	62	20	37	11	25	9	21	9
20-24	74	32	43	22	31	10	29	10
25-29	95	30	65	18	30	12	28	12
30-34	107	44	63	31	44	13	44	13
35-39	146	51	75	31	71	20	66	20
40-44	183	77	113	45	70	32	69	30
45-49	279	116	194	75	85	41	83	41
50-54	437	176	344	124	93	52	89	49
55-59	633	270	527	216	106	54	97	54
60-64	659	287	545	230	114	57	110	56
65-69	659	342	557	288	102	54	97	52
70-74	492	292	420	246	72	46	65	46
75 up	565	593	489	514	76	79	69	74
Not Stated	1	1	0	1	1	0	1	0
TOTALS	4464	2384	3529	1893	935	491	882	476
SUM BY RACE	6848		5422		1426		1358	

Table 12-A-19
ALL DEATHS IN THE UNITED STATES, 1980
CONGESTIVE HEART FAILURE
ICD.9.CM 428.0

AGE	ALL RACES		WHITE		ALL OTHER		BLACK ONLY	
	MALE	FEMALE	MALE	FEMALE	MALE	FEMALE	MALE	FEMALE
0-4	41	26	26	18	15	8	15	8
5-9	2	2	1	2	1	0	1	0
10-14	8	2	6	0	2	2	2	2
15-19	4	3	4	3	0	0	0	0
20-24	5	6	4	5	1	1	1	1
25-29	15	13	12	9	3	4	3	3
30-34	19	17	13	10	6	7	6	6
35-39	34	16	20	6	14	10	11	10
40-44	55	36	35	16	20	20	20	20
45-49	113	56	79	39	34	17	32	17
50-54	223	131	172	86	51	45	50	43
55-59	374	229	288	170	86	59	82	59
60-64	595	422	482	333	113	89	110	87
65-69	992	813	829	647	163	166	150	159
70-74	1390	1187	1204	1004	186	183	173	173
75 up	5846	9123	5325	8367	521	756	469	716
Not Stated	4	2	2	2	2	0	2	0
TOTALS	9720	12084	8502	10717	1218	1367	1127	1304
SUM BY RACE	21804		19219		2585		2431	

Table 12-A-20
ALL DEATHS IN THE UNITED STATES, 1980
LEFT HEART FAILURE
ICD.9.CM 428.1

AGE	ALL RACES		WHITE		ALL OTHER		BLACK ONLY	
	MALE	FEMALE	MALE	FEMALE	MALE	FEMALE	MALE	FEMALE
0-4	0	0	0	0	0	0	0	0
5-9	0	0	0	0	0	0	0	0
10-14	0	0	0	0	0	0	0	0
15-19	0	0	0	0	0	0	0	0
20-24	0	0	0	0	0	0	0	0
25-29	4	0	3	0	1	0	1	0
30-34	2	0	2	0	0	0	0	0
35-39	0	3	0	3	0	0	0	0
40-44	2	1	0	0	2	1	2	1
45-49	0	1	0	1	0	0	0	0
50-54	7	3	6	2	1	1	1	1
55-59	8	7	7	6	1	1	1	1
60-64	13	7	11	7	2	0	2	0
65-69	21	9	20	8	1	1	1	1
70-74	17	19	17	17	0	2	0	2
75 up	65	74	57	68	8	6	8	6
Not Stated	0	0	0	0	0	0	0	0
TOTALS	139	124	123	112	16	12	16	12
SUM BY RACE	263		235		28		28	

Table 12-A-21
ALL DEATHS IN THE UNITED STATES, 1980
HEART FAILURE, UNSPECIFIED
ICD.9.CM 428.9

AGE	ALL RACES		WHITE		ALL OTHER		BLACK ONLY	
	MALE	FEMALE	MALE	FEMALE	MALE	FEMALE	MALE	FEMALE
0-4	20	16	14	11	6	5	6	5
5-9	1	0	1	0	0	0	0	0
10-14	2	0	2	0	0	0	0	0
15-19	4	4	2	4	2	0	2	0
20-24	7	2	3	2	4	0	3	0
25-29	10	4	8	3	2	1	2	1
30-34	10	4	5	1	5	3	5	3
35-39	22	11	14	8	8	3	8	2
40-44	26	17	22	13	4	4	4	4
45-49	56	32	49	18	7	14	7	14
50-54	96	44	82	33	14	11	14	10
55-59	179	82	147	70	32	12	29	11
60-64	249	119	207	90	42	29	37	28
65-69	373	189	315	153	58	36	56	35
70-74	387	291	330	241	57	50	55	50
75 up	1298	1791	1139	1568	159	223	151	214
Not Stated	0	2	0	0	0	2	0	1
TOTALS	2740	2608	2340	2215	400	393	379	378
SUM BY RACE	5348		4555		793		757	

Table 12-A-22
ALL DEATHS IN THE UNITED STATES, 1980
MYOCARDITIS, UNSPECIFIED
ICD.9.CM 492.0

<u>AGE</u>	<u>ALL RACES</u>		<u>WHITE</u>		<u>ALL OTHER</u>		<u>BLACK ONLY</u>	
	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>
0-4	26	26	16	20	10	6	10	5
5-9	5	11	5	5	0	6	0	5
10-14	6	11	6	10	0	1	0	1
15-19	12	12	7	8	5	4	5	2
20-24	19	9	15	7	4	2	4	1
25-29	26	9	18	9	8	0	4	0
30-34	22	13	12	8	10	5	9	5
35-39	19	15	10	9	9	6	7	6
40-44	20	18	18	13	2	5	2	4
45-49	17	20	13	12	4	8	4	8
50-54	15	26	8	25	7	1	6	1
55-59	21	27	18	25	3	2	3	2
60-64	38	26	30	22	8	4	8	3
65-69	41	27	34	23	7	4	7	4
70-74	62	52	54	45	8	7	8	7
75 up	304	551	287	520	17	31	14	31
Not Stated	1	1	1	1	0	0	0	0
TOTALS	654	854	552	762	102	92	91	85
SUM BY RACE	1508		1314		194		176	

Table 12-A-23
ALL DEATHS IN THE UNITED STATES, 1980
MYOCARDIAL DEGENERATION
ICD.9.CM 429.1

AGE	ALL RACES		WHITE		ALL OTHER		BLACK ONLY	
	MALE	FEMALE	MALE	FEMALE	MALE	FEMALE	MALE	FEMALE
0-4	1	2	1	2	0	0	0	0
5-9	0	0	0	0	0	0	0	0
10-14	0	3	0	2	0	1	0	1
15-19	2	0	1	0	1	0	1	0
20-24	1	0	1	0	0	0	0	0
25-29	3	0	2	0	1	0	1	0
30-34	3	2	2	0	1	2	1	2
35-39	2	3	0	1	2	2	1	2
40-44	9	6	7	6	2	0	2	0
45-49	10	2	9	1	1	1	1	1
50-54	25	4	23	3	2	1	2	1
55-59	40	18	38	15	2	3	2	3
60-64	54	17	49	15	5	2	5	2
65-69	60	41	53	34	7	7	6	7
70-74	72	54	70	50	2	4	2	4
75 up	239	412	222	386	17	26	17	25
Not Stated	0	0	0	0	0	0	0	0
TOTALS	521	564	478	515	43	49	41	48
SUM BY RACE	1085		993		92		89	

Table 12-A-24
ALL DEATHS IN THE UNITED STATES, 1980
CARDIOMEGALY
ICD.9.CM 429.3

AGE	ALL RACES		WHITE		ALL OTHER		BLACK ONLY	
	MALE	FEMALE	MALE	FEMALE	MALE	FEMALE	MALE	FEMALE
0-4	7	7	6	2	1	5	1	5
5-9	2	0	0	0	2	0	2	0
10-14	2	0	2	0	0	0	0	0
15-19	10	2	5	1	5	1	5	1
20-24	20	5	11	3	9	2	9	2
25-29	22	6	17	2	5	4	5	4
30-34	20	11	6	5	14	6	14	6
35-39	30	7	15	4	15	3	14	3
40-44	32	7	20	4	12	3	12	2
45-49	24	10	15	7	9	3	8	3
50-54	31	15	23	9	8	6	8	5
55-59	37	12	28	10	9	2	9	2
60-64	28	24	24	19	4	5	4	5
65-69	40	21	30	17	10	4	9	4
70-74	45	21	35	18	10	3	10	3
75 up	81	114	67	100	14	14	12	12
Not Stated	0	0	0	0	0	0	0	0
TOTALS	431	262	304	201	127	61	122	57
SUM BY RACE	693		505		188		179	

Table 12-A-25
ALL DEATHS IN THE UNITED STATES, 1980
SUMMARY OF ALL AGES AND ALL CONDITIONS
SELECTED CONDITIONS FOR WHICH HEART TRANSPLANTATION IS INDICATED

<u>AGE</u>	<u>ALL RACES</u>		<u>WHITE</u>		<u>ALL OTHER</u>		<u>BLACK ONLY</u>	
	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>
0-4	150	125	109	90	41	35	40	32
5-9	26	28	21	18	5	10	5	9
10-14	14	32	38	21	9	11	8	11
15-19	126	58	75	36	51	22	46	19
20-24	190	82	114	58	76	24	71	20
25-29	268	110	187	72	81	38	72	33
30-34	427	163	285	98	142	65	136	58
35-39	772	284	544	190	228	94	200	89
40-44	1345	528	1046	363	299	165	283	154
45-49	2462	894	1970	635	492	259	458	252
50-54	4570	1727	3812	1324	758	403	703	381
55-59	7720	3250	6642	2614	1078	636	987	617
60-64	10480	5302	9156	4371	1324	931	1233	901
65-69	14792	8912	13108	7589	1684	1323	1583	1273
70-74	18154	13935	16409	12276	1745	1659	1588	1593
75 up	68942	106625	63992	100028	4950	6597	4435	6207
Not Stated	42	25	23	20	19	5	18	4
TOTALS	130513	142080	117531	129803	12982	12277	11866	11653
SUM BY RACE	272593		247334		25259		23519	

Table 12-A-26
ALL DEATHS IN THE UNITED STATES, 1980
AGES 5-54 ONLY
SELECTED CONDITIONS FOR WHICH HEART TRANSPLANTATION IS INDICATED

<u>AGE</u>	<u>ALL RACES</u>		<u>WHITE</u>		<u>ALL OTHER</u>		<u>BLACK ONLY</u>	
	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>
0-4								
5-9	26	28	21	18	5	10	5	9
10-14	47	32	38	21	9	11	8	11
15-19	126	58	75	36	51	22	46	19
20-24	190	82	114	58	76	24	71	20
25-29	268	110	187	72	81	38	72	33
30-34	427	163	285	98	142	65	136	58
35-39	772	284	544	190	228	94	200	89
40-44	1345	528	1046	363	299	165	283	154
45-49	2462	894	1970	635	492	259	458	252
50-54	4570	1727	3812	1324	758	403	703	381
55-59								
60-64								
65-69								
70-74								
75 up								
Not Stated	42	25	23	20	19	5	18	4
TOTALS	10275	3931	8115	2835	2160	1096	2000	1030
SUM BY RACE	14206		10950		3256		3030	

Table 12-A-27
ALL DEATHS IN THE UNITED STATES, 1980
AGES 10-54 ONLY
SELECTED CONDITIONS FOR WHICH HEART TRANSPLANTATION IS INDICATED

<u>AGE</u>	<u>ALL RACES</u>		<u>WHITE</u>		<u>ALL OTHER</u>		<u>BLACK ONLY</u>	
	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>
0-4								
5-9								
10-14	47	32	38	21	9	11	8	11
15-19	126	58	75	36	51	22	46	19
20-24	190	82	114	58	76	24	71	20
25-29	268	110	187	72	81	38	72	33
30-34	427	163	285	98	142	65	136	58
35-39	772	284	544	190	228	94	200	89
40-44	1345	528	1046	363	299	165	283	154
45-49	2462	894	1970	635	492	259	458	252
50-54	4570	1727	3812	1324	758	403	703	381
55-59								
60-64								
65-69								
70-74								
75 up								
Not Stated	42	25	23	20	19	5	18	4
TOTALS	10249	3903	8094	2817	2155	1086	1995	1022
SUM BY RACE	14152		10911		3241		3016	

Table 12-A-28
ALL DEATHS IN THE UNITED STATES, 1980
AGES 5-49 ONLY
SELECTED CONDITIONS FOR WHICH HEART TRANSPLANTATION IS INDICATED

<u>AGE</u>	<u>ALL RACES</u>		<u>WHITE</u>		<u>ALL OTHER</u>		<u>BLACK ONLY</u>	
	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>
0-4								
5-9	26	28	21	18	5	10	5	9
10-14	47	32	38	21	9	11	8	11
15-19	126	58	75	36	51	22	46	19
20-24	190	82	114	58	76	24	71	20
25-29	268	110	187	72	81	38	72	33
30-34	427	163	285	98	142	65	136	58
35-39	772	284	544	190	228	94	200	89
40-44	1345	528	1046	363	299	165	283	154
45-49	2462	894	1970	635	492	259	458	252
50-54								
55-59								
60-64								
65-69								
70-74								
75 up								
Not Stated	42	25	23	20	19	5	18	4
TOTALS	5705	2204	4303	1511	1402	693	1297	649
SUM BY RACE	7909		5814		2095		1946	

Table 12-A-29
ALL DEATHS IN THE UNITED STATES, 1980
AGES 10-49 ONLY
SELECTED CONDITIONS FOR WHICH HEART TRANSPLANTATION IS INDICATED

<u>AGE</u>	<u>ALL RACES</u>		<u>WHITE</u>		<u>ALL OTHER</u>		<u>BLACK ONLY</u>	
	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>
0-4								
5-9								
10-14	47	32	38	21	9	11	8	11
15-19	126	58	75	36	51	22	46	19
20-24	190	82	114	58	76	24	71	20
25-29	268	110	187	72	81	38	72	33
30-34	427	163	285	98	142	65	136	58
35-39	772	284	544	190	228	94	200	89
40-44	1345	528	1046	363	299	165	283	154
45-49	2462	894	1970	635	492	259	458	252
50-54								
55-59								
60-64								
65-69								
70-74								
75 up								
Not Stated	42	25	23	20	19	5	18	4
TOTALS	5679	2176	4282	1493	1397	683	1292	640
SUM BY RACE	7855		5775		2080		1932	

APPENDIX 12-B

DETAILED MORTALITY TABLES FOR 1979

Table 12-B-1
ALL DEATHS IN THE UNITED STATES, 1979
MALIGNANT NEOPLASM OF THE HEART
ICD.9.CM 164.1

AGE	ALL RACES		WHITE		ALL OTHER		BLACK ONLY	
	MALE	FEMALE	MALE	FEMALE	MALE	FEMALE	MALE	FEMALE
0-4	0	0	0	0	0	0	0	0
5-9	0	0	0	0	0	0	0	0
10-14	0	0	0	0	0	0	0	0
15-19	0	0	0	0	0	0	0	0
20-24	0	0	0	0	0	0	0	0
25-29	1	2	1	2	0	0	0	0
30-34	2	0	2	0	0	0	0	0
35-39	2	1	1	1	1	0	1	0
40-44	0	0	0	0	0	0	0	0
45-49	1	1	1	0	0	1	0	1
50-54	1	2	1	1	0	1	0	0
55-59	2	7	2	7	0	0	0	0
60-64	5	4	4	3	1	1	1	0
65-69	7	2	7	2	0	0	0	0
70-74	2	5	2	4	0	1	0	1
75 up	2	6	2	6	0	0	0	0
Not Stated	0	0	0	0	0	0	0	0
TOTALS	25	30	23	26	2	2	2	4
SUM BY RACE	55		49		4		6	

Table 12-B-2
ALL DEATHS IN THE UNITED STATES, 1979
MITRAL STENOSIS
ICD.9.CM 394.0

AGE	ALL RACES		WHITE		ALL OTHER		BLACK ONLY	
	MALE	FEMALE	MALE	FEMALE	MALE	FEMALE	MALE	FEMALE
0-4	0	0	0	0	0	0	0	0
5-9	0	2	0	1	0	1	0	0
10-14	0	0	0	0	0	0	0	0
15-19	0	1	0	0	0	1	0	1
20-24	1	1	1	0	0	1	0	1
25-29	3	11	2	7	1	4	1	3
30-34	0	7	0	7	0	0	0	0
35-39	7	11	4	10	3	1	3	1
40-44	6	20	5	20	1	0	0	0
45-49	12	29	8	25	4	4	4	4
50-54	36	51	31	49	5	2	5	2
55-59	24	80	23	76	1	4	1	2
60-64	34	95	32	91	2	4	2	3
65-69	33	131	31	128	2	3	2	2
70-74	34	142	32	140	2	2	1	1
75 up	48	196	45	189	3	7	3	6
Not Stated	0	0	0	0	0	0	0	0
TOTALS	238	777	214	743	24	34	22	26
SUM BY RACE	1015		957		58		48	

Table 12-B-3
ALL DEATHS IN THE UNITED STATES, 1979
RHEUMATIC MITRAL INSUFFICIENCY
ICD.9.CM 394.1

AGE	ALL RACES		WHITE		ALL OTHER		BLACK ONLY	
	MALE	FEMALE	MALE	FEMALE	MALE	FEMALE	MALE	FEMALE
0-4	0	0	0	0	0	0	0	0
5-9	0	0	0	0	0	0	0	0
10-14	0	0	0	0	0	0	0	0
15-19	0	0	0	0	0	0	0	0
20-24	0	3	0	3	0	0	0	0
25-29	0	1	0	1	0	0	0	0
30-34	1	3	1	2	0	1	0	1
35-39	2	3	2	2	0	1	0	1
40-44	6	2	4	1	2	1	2	1
45-49	9	4	8	3	1	1	1	1
50-54	6	9	6	8	0	1	0	1
55-59	10	12	8	9	2	3	1	3
60-64	16	22	14	19	2	3	1	2
65-69	15	28	15	28	0	0	0	0
70-74	15	37	15	34	0	3	0	2
75 up	46	88	42	84	4	4	4	4
Not Stated	0	0	0	0	0	0	0	0
TOTALS	126	212	115	194	11	18	9	16
SUM BY RACE	338		309		29		25	

Table 12-B-4
ALL DEATHS IN THE UNITED STATES, 1979
MITRAL STENOSIS WITH INSUFFICIENCY
ICD.9.CM 394.2

AGE	ALL RACES		WHITE		ALL OTHER		BLACK ONLY	
	MALE	FEMALE	MALE	FEMALE	MALE	FEMALE	MALE	FEMALE
0-4	0	0	0	0	0	0	0	0
5-9	0	0	0	0	0	0	0	0
10-14	0	0	0	0	0	0	0	0
15-19	0	0	0	0	0	0	0	0
20-24	0	0	0	0	0	0	0	0
25-29	0	0	0	0	0	0	0	0
30-34	0	1	0	1	0	0	0	0
35-39	1	0	0	0	1	0	0	0
40-44	2	4	2	2	0	2	0	2
45-49	1	6	0	6	1	0	1	0
50-54	3	4	2	4	1	0	1	0
55-59	7	10	7	8	0	2	0	2
60-64	2	8	2	8	0	0	0	0
65-69	8	25	8	24	0	1	0	1
70-74	9	24	9	24	0	0	0	0
75 up	7	51	7	51	0	0	0	0
Not Stated	0	0	0	0	0	0	0	0
TOTALS	40	133	37	128	3	5	2	5
SUM BY RACE	173		165		8		7	

Table 12-B-5
ALL DEATHS IN THE UNITED STATES, 1979
OTHER AND UNSPECIFIED MITRAL VALVE DISEASES
ICD.9.CM 394.9

AGE	ALL RACES		WHITE		ALL OTHER		BLACK ONLY	
	MALE	FEMALE	MALE	FEMALE	MALE	FEMALE	MALE	FEMALE
0-4	1	1	1	1	0	0	0	0
5-9	0	1	0	0	0	1	0	1
10-14	3	0	2	0	1	0	1	0
15-19	4	5	1	3	3	2	3	2
20-24	3	8	2	7	1	1	1	1
25-29	5	9	2	5	3	4	2	4
30-34	9	11	8	9	1	2	0	2
35-39	13	16	9	14	4	2	4	2
40-44	19	35	12	30	7	5	6	5
45-49	20	59	18	49	2	10	2	8
50-54	35	70	31	59	4	11	4	11
55-59	56	98	54	83	2	15	2	12
60-64	72	149	70	142	2	7	1	7
65-69	78	158	73	152	5	6	5	6
70-74	57	139	54	133	3	6	3	3
75 up	79	195	76	189	3	6	3	6
Not Stated	0	0	0	0	0	0	0	0
TOTALS	454	954	413	876	41	78	37	70
SUM BY RACE	1408		1289		119		107	

Table 12-B-6
ALL DEATHS IN THE UNITED STATES, 1979
RHEUMATIC AORTIC STENOSIS
ICD.9.CM 395.0

AGE	ALL RACES		WHITE		ALL OTHER		BLACK ONLY	
	MALE	FEMALE	MALE	FEMALE	MALE	FEMALE	MALE	FEMALE
0-4	0	0	0	0	0	0	0	0
5-9	0	0	0	0	0	0	0	0
10-14	0	0	0	0	0	0	0	0
15-19	0	0	0	0	0	0	0	0
20-24	1	0	1	0	0	0	0	0
25-29	0	0	0	0	0	0	0	0
30-34	0	0	0	0	0	0	0	0
35-39	1	0	1	0	0	0	0	0
40-44	3	2	3	2	0	0	0	0
45-49	8	1	7	1	1	0	1	0
50-54	7	0	6	0	1	0	1	0
55-59	12	6	12	6	0	0	0	0
60-64	14	14	13	13	1	1	1	1
65-69	8	14	8	13	0	1	0	0
70-74	18	19	17	19	1	0	1	0
75 up	33	48	33	47	0	1	0	1
Not Stated	0	0	0	0	0	0	0	0
TOTALS	105	104	101	101	4	3	4	2
SUM BY RACE	209		202		7		6	

Table 12-B-7
ALL DEATHS IN THE UNITED STATES, 1979
RHEUMATIC AORTIC INSUFFICIENCY
ICD.9.CM 395.1

AGE	ALL RACES		WHITE		ALL OTHER		BLACK ONLY	
	MALE	FEMALE	MALE	FEMALE	MALE	FEMALE	MALE	FEMALE
0-4	0	0	0	0	0	0	0	0
5-9	0	0	0	0	0	0	0	0
10-14	0	0	0	0	0	0	0	0
15-19	0	0	0	0	0	0	0	0
20-24	1	0	1	0	0	0	0	0
25-29	1	0	1	0	0	0	0	0
30-34	0	1	0	1	0	0	0	0
35-39	0	0	0	0	0	0	0	0
40-44	5	1	5	1	0	0	0	0
45-49	2	4	2	3	0	1	0	1
50-54	2	4	1	2	1	2	1	2
55-59	4	1	4	0	0	1	0	1
60-64	8	0	7	0	1	0	1	0
65-69	7	8	6	7	1	1	1	1
70-74	3	7	3	6	0	1	0	1
75 up	16	15	15	15	1	0	1	0
Not Stated	0	0	0	0	0	0	0	0
TOTALS	49	41	45	35	4	6	4	6
SUM BY RACE	90		80		10		10	

Table 12-B-8
ALL DEATHS IN THE UNITED STATES, 1979
RHEUMATIC AORTIC STENOSIS WITH INSUFFICIENCY
ICD.9.CM 395.2

<u>AGE</u>	<u>ALL RACES</u>		<u>WHITE</u>		<u>ALL OTHER</u>		<u>BLACK ONLY</u>	
	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>
0-4	0	0	0	0	0	0	0	0
5-9	0	0	0	0	0	0	0	0
10-14	1	0	1	0	0	0	0	0
15-19	0	0	0	0	0	0	0	0
20-24	0	0	0	0	0	0	0	0
25-29	0	0	0	0	0	0	0	0
30-34	1	0	1	0	0	0	0	0
35-39	0	1	0	1	0	0	0	0
40-44	0	0	0	0	0	0	0	0
45-49	1	0	1	0	0	0	0	0
50-54	1	3	1	3	0	0	0	0
55-59	6	6	6	6	0	0	0	0
60-64	2	4	1	2	1	2	1	2
65-69	4	3	3	3	1	0	1	0
70-74	2	4	2	2	0	2	0	2
75 up	5	12	5	12	0	0	0	0
Not Stated	0	0	0	0	0	0	0	0
TOTALS	23	33	21	29	2	4	2	4
SUM BY RACE	56		50		6		6	

Table 12-B-9
ALL DEATHS IN THE UNITED STATES, 1979
OTHER AND UNSPECIFIED RHEUMATIC AORTIC DISEASES
ICD.9.CM 395.9

<u>AGE</u>	<u>ALL RACES</u>		<u>WHITE</u>		<u>ALL OTHER</u>		<u>BLACK ONLY</u>	
	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>
0-4	0	0	0	0	0	0	0	0
5-9	0	0	0	0	0	0	0	0
10-14	0	0	0	0	0	0	0	0
15-19	1	0	1	0	0	0	0	0
20-24	2	0	1	0	1	0	1	0
25-29	1	0	1	0	0	0	0	0
30-34	2	0	2	0	0	0	0	0
35-39	4	1	2	1	2	0	1	0
40-44	2	2	2	0	0	2	0	2
45-49	3	3	3	2	0	1	0	1
50-54	3	5	3	4	0	1	0	1
55-59	9	6	9	6	0	0	0	0
60-64	11	0	11	0	0	0	0	0
65-69	10	9	10	9	0	0	0	0
70-74	10	10	9	10	1	0	1	0
75 up	8	16	8	16	0	0	0	0
Not Stated	0	0	0	0	0	0	0	0
TOTALS	66	52	62	48	4	4	3	4
SUM BY RACE	118		110		8		7	

Table 12-8-10
ALL DEATHS IN THE UNITED STATES, 1979
DISEASES OF MITRAL AND AORTIC VALVES
ICD.9.CM 396

AGE	ALL RACES		WHITE		ALL OTHER		BLACK ONLY	
	MALE	FEMALE	MALE	FEMALE	MALE	FEMALE	MALE	FEMALE
0-4	1	1	1	1	0	0	0	0
5-9	0	0	0	0	0	0	0	0
10-14	0	0	0	0	0	0	0	0
15-19	5	0	3	0	2	0	2	0
20-24	5	5	3	1	2	4	2	4
25-29	2	3	1	2	1	1	0	1
30-34	7	6	4	4	3	2	3	1
35-39	9	11	8	8	1	3	1	3
40-44	14	15	12	10	2	5	2	3
45-49	16	27	12	24	4	3	4	2
50-54	38	37	34	33	4	4	3	4
55-59	47	46	45	38	2	8	2	7
60-64	54	59	49	56	5	3	5	3
65-69	61	74	58	72	3	2	3	2
70-74	56	94	55	88	1	6	1	6
75 up	94	205	91	192	3	13	3	12
Not Stated	0	0	0	0	0	0	0	0
TOTALS	409	583	376	529	33	54	31	48
SUM BY RACE	992		905		87		79	

Table 12-8-11
ALL DEATHS IN THE UNITED STATES, 1979
RHEUMATIC MYOCARDITIS
ICD.9.CM 398.0

AGE	ALL RACES		WHITE		ALL OTHER		BLACK ONLY	
	MALE	FEMALE	MALE	FEMALE	MALE	FEMALE	MALE	FEMALE
0-4	0	0	0	0	0	0	0	0
5-9	0	0	0	0	0	0	0	0
10-14	0	0	0	0	0	0	0	0
15-19	0	0	0	0	0	0	0	0
20-24	1	0	0	0	1	0	1	0
25-29	1	0	1	0	0	0	0	0
30-34	0	0	0	0	0	0	0	0
35-39	0	1	0	1	0	0	0	0
40-44	1	0	1	0	0	0	0	0
45-49	0	1	0	1	0	0	0	0
50-54	0	1	0	1	0	0	0	0
55-59	0	2	0	1	0	1	0	1
60-64	2	2	2	1	0	1	0	1
65-69	1	2	1	2	0	0	0	0
70-74	0	0	0	0	0	0	0	0
75 up	0	3	0	2	0	1	0	1
Not Stated	0	0	0	0	0	0	0	0
TOTALS	6	12	5	9	1	3	1	3
SUM BY RACE	18		14		4		4	

Table 12-8-12
ALL DEATHS IN THE UNITED STATES, 1979
OTHER AND UNSPECIFIED RHEUMATIC HEART DISEASES
ICD.9.CM 395.9

<u>AGE</u>	<u>ALL RACES</u>		<u>WHITE</u>		<u>ALL OTHER</u>		<u>BLACK ONLY</u>	
	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>
0-4	0	0	0	0	0	0	0	0
5-9	0	0	0	0	0	0	0	0
10-14	2	1	1	1	1	0	1	0
15-19	5	3	2	1	3	2	3	2
20-24	11	6	7	4	4	2	2	2
25-29	15	9	8	1	7	8	7	6
30-34	14	15	8	9	6	6	4	6
35-39	18	23	9	19	9	4	8	2
40-44	33	29	28	23	5	6	5	6
45-49	48	63	43	54	5	9	5	8
50-54	71	105	64	94	7	11	6	11
55-59	113	143	106	132	7	11	7	11
60-64	100	214	93	202	7	12	5	9
65-69	125	284	119	272	6	12	5	10
70-74	151	314	146	304	5	10	3	8
75 up	177	615	170	593	7	22	6	18
Not Stated	0	0	0	0	0	0	0	0
TOTALS	883	1824	804	1709	79	115	67	99
SUM BY RACE	2707		2513		194		166	

Table 12-B-13
ALL DEATHS IN THE UNITED STATES, 1979
CORONARY ATHEROSCLEROSIS
ICD.9.CM 414.0

AGE	ALL RACES		WHITE		ALL OTHER		BLACK ONLY	
	MALE	FEMALE	MALE	FEMALE	MALE	FEMALE	MALE	FEMALE
0-4	4	3	1	2	3	1	2	0
5-9	1	1	1	1	0	0	0	0
10-14	0	1	0	1	0	0	0	0
15-19	4	1	3	0	1	1	1	1
20-24	10	6	10	3	0	3	0	3
25-29	48	10	36	6	12	4	11	4
30-34	181	43	148	25	33	18	26	18
35-39	379	93	305	64	74	29	68	28
40-44	864	210	702	141	162	69	150	64
45-49	1776	430	1492	289	284	141	263	136
50-54	3374	923	2854	678	520	245	479	236
55-59	5485	1814	4740	1439	745	375	677	361
60-64	7957	3403	7060	2812	897	591	834	580
65-69	11140	6130	9994	5191	1146	939	1055	898
70-74	14316	10302	13002	9096	1314	1206	1197	1157
75 up	55361	84623	51841	79854	3520	4769	3147	4447
Not Stated	29	9	19	4	10	5	9	5
TOTALS	100929	108002	92208	99606	8721	8396	7919	7938
SUM BY RACE	208931		191814		17117		15857	

Table 12-B-14
ALL DEATHS IN THE UNITED STATES, 1979
ANEURYSM OF HEART
ICD.9.CM 414.1

<u>AGE</u>	<u>ALL RACES</u>		<u>WHITE</u>		<u>ALL OTHER</u>		<u>BLACK ONLY</u>	
	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>
0-4	0	0	0	0	0	0	0	0
5-9	0	0	0	0	0	0	0	0
10-14	0	0	0	0	0	0	0	0
15-19	2	0	2	0	0	0	0	0
20-24	1	1	1	1	0	0	0	0
25-29	2	0	0	0	2	0	2	0
30-34	3	1	3	0	0	1	0	1
35-39	8	1	7	1	1	0	1	0
40-44	8	4	7	2	1	2	1	2
45-49	20	7	19	6	1	1	1	1
50-54	30	5	29	5	1	0	1	0
55-59	39	19	37	17	2	2	2	2
60-64	52	17	52	15	0	2	0	2
65-69	39	30	35	30	4	0	4	0
70-74	35	15	33	14	2	1	2	1
75 up	58	48	57	46	1	2	1	2
Not Stated	0	0	0	0	0	0	0	0
TOTALS	297	148	282	137	15	11	15	11
SUM BY RACE	445		419		26		26	

Table 12-B-15
ALL DEATHS IN THE UNITED STATES, 1979
OTHER SPECIFIED FORMS OF CHRONIC ISCHEMIC HEART DISEASE
ICD.9.CM 414.8

<u>AGE</u>	<u>ALL RACES</u>		<u>WHITE</u>		<u>ALL OTHER</u>		<u>BLACK ONLY</u>	
	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>
0-4	0	1	0	1	0	0	0	0
5-9	0	0	0	0	0	0	0	0
10-14	0	0	0	0	0	0	0	0
15-19	0	1	0	0	0	1	0	1
20-24	0	0	0	0	0	0	0	0
25-29	2	0	2	0	0	0	0	0
30-34	7	1	6	1	1	0	1	0
35-39	15	4	11	3	4	1	3	1
40-44	24	7	21	5	3	2	3	1
45-49	41	13	37	10	4	3	4	3
50-54	120	27	104	21	16	6	14	6
55-59	174	36	165	32	9	4	7	4
60-64	219	67	201	58	18	9	17	8
65-69	253	115	234	95	19	20	15	19
70-74	275	145	263	134	12	11	12	11
75 up	616	701	585	673	31	28	29	26
Not Stated	0	0	0	0	0	0	0	0
TOTALS	1746	1118	1629	1033	117	85	105	80
SUM BY RACE	2864		2662		202		185	

Table 12-B-16
ALL DEATHS IN THE UNITED STATES, 1979
AORTIC VALVE DISORDERS
ICD.9.CM 424.1

<u>AGE</u>	<u>ALL RACES</u>		<u>WHITE</u>		<u>ALL OTHER</u>		<u>BLACK ONLY</u>	
	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>
0-4	7	1	5	0	2	1	2	1
5-9	2	1	2	0	0	1	0	1
10-14	2	0	1	0	1	0	1	0
15-19	8	1	7	0	1	1	0	1
20-24	14	2	11	2	3	0	2	0
25-29	17	4	16	3	1	1	1	1
30-34	22	4	18	3	4	1	4	1
35-39	28	7	20	6	8	1	7	1
40-44	45	12	39	9	6	3	5	2
45-49	58	5	48	4	10	1	10	1
50-54	89	41	77	29	12	12	11	12
55-59	192	55	169	48	23	7	22	6
60-64	267	116	240	98	27	20	23	18
65-69	334	171	297	147	37	24	33	22
70-74	384	307	356	279	28	28	25	25
75 up	956	1109	893	1040	63	69	57	63
Not State	2	0	2	0	0	0	0	0
TOTALS	2427	1836	2201	1666	226	170	203	155
SUM BY RACE	4263		3867		396		358	

Table 12-B-17
ALL DEATHS IN THE UNITED STATES, 1979
ENDOMYOCARDIAL FIBROSIS
ICD.9.CM 425.0

AGE	ALL RACES		WHITE		ALL OTHER		BLACK ONLY	
	MALE	FEMALE	MALE	FEMALE	MALE	FEMALE	MALE	FEMALE
0-4	0	0	0	0	0	0	0	0
5-9	0	0	0	0	0	0	0	0
10-14	0	0	0	0	0	0	0	0
15-19	0	0	0	0	0	0	0	0
20-24	0	0	0	0	0	0	0	0
25-29	1	0	0	0	1	0	1	0
30-34	0	1	0	0	0	1	0	1
35-39	0	0	0	0	0	0	0	0
40-44	0	0	0	0	0	0	0	0
45-49	0	0	0	0	0	0	0	0
50-54	0	0	0	0	0	0	0	0
55-59	0	0	0	0	0	0	0	0
60-64	0	0	0	0	0	0	0	0
65-69	1	0	1	0	0	0	0	0
70-74	0	0	0	0	0	0	0	0
75 up	1	0	1	0	0	0	0	0
Not Stated	0	0	0	0	0	0	0	0
TOTALS	3	1	2	0	1	1	1	1
SUM BY RACE	4		2		2		2	

Table 12-B-18
ALL DEATHS IN THE UNITED STATES, 1979
OTHER PRIMARY CARDIOMYOPATHIES
ICD.9.CM 425.4

<u>AGE</u>	<u>ALL RACES</u>		<u>WHITE</u>		<u>ALL OTHER</u>		<u>BLACK ONLY</u>	
	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>
0-4	31	23	22	19	9	4	7	3
5-9	9	6	9	3	0	3	0	3
10-14	14	15	9	13	5	2	4	1
15-19	44	15	29	14	15	1	15	1
20-24	66	19	45	13	21	6	21	6
25-29	83	38	60	17	23	21	21	20
30-34	97	42	69	26	28	16	26	15
35-39	125	41	78	25	47	16	45	15
40-44	192	65	124	42	68	23	66	22
45-49	284	108	208	71	76	37	75	37
50-54	447	157	360	118	87	39	82	38
55-59	570	240	465	178	105	62	101	60
60-64	610	292	502	246	108	46	106	41
65-69	572	272	479	224	93	48	84	47
70-74	408	227	338	197	70	30	66	30
75 up	473	404	416	354	57	50	52	44
Not Stated	0	1	0	0	0	1	0	1
TOTALS	4025	1965	3213	1560	812	405	771	384
SUM BY RACE	5990		4773		1217		1155	

Table 12-B-19
ALL DEATHS IN THE UNITED STATES, 1979
CONGESTIVE HEART FAILURE
ICD.9.CM 428.0

<u>AGE</u>	<u>ALL RACES</u>		<u>WHITE</u>		<u>ALL OTHER</u>		<u>BLACK ONLY</u>	
	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>
0-4	26	21	20	14	6	7	5	5
5-9	1	1	1	1	0	0	0	0
10-14	2	2	2	1	0	1	0	1
15-19	5	3	3	2	2	1	2	1
20-24	8	2	5	1	3	1	3	1
25-29	14	8	10	7	4	1	4	1
30-34	18	6	11	4	7	2	7	1
35-39	29	17	21	10	8	7	8	7
40-44	51	42	41	26	10	16	8	16
45-49	109	43	76	28	33	15	33	15
50-54	225	137	179	93	46	44	43	43
55-59	393	253	315	174	78	79	75	73
60-64	646	446	523	341	123	105	119	100
65-69	993	703	822	556	171	147	160	137
70-74	1255	1096	1110	895	145	201	137	193
75 up	5188	8089	4799	7447	489	642	453	603
Not Stated	2	2	1	1	1	1	1	1
TOTALS	9065	10871	7939	9601	1126	1270	1058	1198
SUM BY RACE	19936		17540		2396		2256	

Table 12-B-20
ALL DEATHS IN THE UNITED STATES, 1979
LEFT HEART FAILURE
ICD.9.CM 428.1

<u>AGE</u>	<u>ALL RACES</u>		<u>WHITE</u>		<u>ALL OTHER</u>		<u>BLACK ONLY</u>	
	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>
0-4	2	0	2	0	0	0	0	0
5-9	0	0	0	0	0	0	0	0
10-14	2	0	2	0	0	0	0	0
15-19	0	0	0	0	0	0	0	0
20-24	1	1	1	1	0	0	0	0
25-29	0	2	0	1	0	1	0	1
30-34	2	0	2	0	0	0	0	0
35-39	1	0	1	0	0	0	0	0
40-44	2	0	1	0	1	0	1	0
45-49	2	4	1	2	1	2	1	2
50-54	5	2	5	1	0	1	0	1
55-59	11	7	9	6	2	1	2	1
60-64	16	1	12	1	4	0	4	0
65-69	17	16	14	13	3	3	3	2
70-74	12	18	10	16	2	2	2	2
75 up	50	76	49	70	1	6	1	6
Not Stated	0	0	0	0	0	0	0	0
TOTALS	123	127	109	111	14	16	14	15
SUM BY RACE	250		220		30		29	

Table 12-8-21
ALL DEATHS IN THE UNITED STATES, 1979
HEART FAILURE, UNSPECIFIED
ICD.9.CM 428.9

AGE	ALL RACES		WHITE		ALL OTHER		BLACK ONLY	
	MALE	FEMALE	MALE	FEMALE	MALE	FEMALE	MALE	FEMALE
0-4	16	14	12	10	4	4	4	4
5-9	1	3	1	3	0	0	0	0
10-14	2	1	1	1	1	0	1	0
15-19	6	2	4	1	2	1	2	1
20-24	6	6	4	4	2	2	2	1
25-29	11	5	6	3	5	2	5	2
30-34	11	13	10	7	1	6	1	6
35-39	19	8	15	5	4	3	4	2
40-44	29	12	23	8	6	4	6	4
45-49	59	29	48	23	11	6	11	6
50-54	101	42	93	29	8	13	8	12
55-59	183	70	147	49	36	21	34	18
60-64	215	120	184	87	31	33	31	32
65-69	340	203	290	167	50	36	48	34
70-74	336	262	294	211	42	51	39	51
75 up	1141	1622	1001	1447	140	175	132	163
Not Stated	0	0	0	0	0	0	0	0
TOTALS	2476	2412	2133	2055	343	357	328	336
SUM BY RACE	4888		4188		700		664	

Table 12-B-22
ALL DEATHS IN THE UNITED STATES, 1979
MYOCARDITIS, UNSPECIFIED
ICD.9.CM 492.0

AGE	ALL RACES		WHITE		ALL OTHER		BLACK ONLY	
	MALE	FEMALE	MALE	FEMALE	MALE	FEMALE	MALE	FEMALE
0-4	24	21	10	10	4	11	3	8
5-9	6	4	4	3	2	1	2	1
10-14	3	11	3	5	0	6	0	5
15-19	11	9	7	7	4	2	4	2
20-24	25	14	23	10	2	4	2	4
25-29	19	12	16	7	3	5	3	4
30-34	15	13	10	11	5	2	4	2
35-39	26	10	21	5	5	5	5	5
40-44	15	15	11	11	4	4	2	4
45-49	23	9	16	7	7	2	7	2
50-54	34	15	26	9	8	6	7	6
55-59	31	21	28	16	3	5	2	4
60-64	39	35	31	27	8	8	7	8
65-69	48	30	42	21	6	9	6	9
70-74	60	60	54	52	6	8	5	8
75 up	342	608	315	569	27	39	23	36
Not Stated	0	0	0	0	0	0	0	0
TOTALS	711	887	617	770	94	117	82	108
SUM BY RACE	1598		1387		211		190	

Table 12-B-23
ALL DEATHS IN THE UNITED STATES, 1979
MYOCARDIAL DEGENERATION
ICD.9.CM 429.1

AGE	ALL RACES		WHITE		ALL OTHER		BLACK ONLY	
	MALE	FEMALE	MALE	FEMALE	MALE	FEMALE	MALE	FEMALE
0-4	0	1	0	1	0	0	0	0
5-9	0	1	0	1	0	0	0	0
10-14	0	0	0	0	0	0	0	0
15-19	1	0	0	0	1	0	1	0
20-24	2	0	2	0	0	0	0	0
25-29	2	0	1	0	1	0	0	0
30-34	2	1	1	1	1	0	1	0
35-39	4	4	2	4	2	0	1	0
40-44	5	3	3	2	2	1	1	1
45-49	12	2	11	2	1	0	1	0
50-54	32	11	27	9	5	2	3	2
55-59	46	18	39	16	7	2	7	2
60-64	42	25	34	22	8	3	8	3
65-69	65	27	59	26	6	1	6	1
70-74	73	59	64	55	9	4	9	4
75 up	235	396	218	377	17	19	15	16
Not Stated	0	0	0	0	0	0	0	0
TOTALS	521	548	461	516	60	32	53	29
SUM BY RACE	1069		977		92		82	

Table 12-8-24
ALL DEATHS IN THE UNITED STATES, 1979
CARDIOMEGALY
ICD.9.CM 429.3

AGE	ALL RACES		WHITE		ALL OTHER		BLACK ONLY	
	MALE	FEMALE	MALE	FEMALE	MALE	FEMALE	MALE	FEMALE
0-4	4	5	3	2	1	3	1	3
5-9	0	1	0	0	0	1	0	1
10-14	1	1	1	1	0	0	0	0
15-19	8	2	4	2	4	0	4	0
20-24	16	2	12	0	4	2	4	2
25-29	22	5	15	2	7	3	7	2
30-34	21	5	13	2	8	3	8	3
35-39	20	14	10	6	10	8	9	8
40-44	21	13	10	8	11	5	11	4
45-49	28	10	19	5	9	5	9	5
50-54	28	13	25	10	3	3	3	2
55-59	41	12	32	9	9	3	9	3
60-64	40	24	32	19	8	5	8	5
65-69	44	13	35	8	9	5	8	5
70-74	40	30	32	26	8	4	6	4
75 up	95	120	79	111	16	9	14	8
Not Stated	0	0	0	0	0	0	0	0
TOTALS	429	270	322	211	107	59	101	55
SUM BY RACE	699		533		166		156	

Table 12-B-25
ALL DEATHS IN THE UNITED STATES, 1979
SUMMARY OF ALL AGES AND ALL CONDITIONS
SELECTED CONDITIONS FOR WHICH HEART TRANSPLANTATION IS INDICATED

AGE	ALL RACES		WHITE		ALL OTHER		BLACK ONLY	
	MALE	FEMALE	MALE	FEMALE	MALE	FEMALE	MALE	FEMALE
0-4	106	92	77	61	29	31	24	24
5-9	20	21	18	13	2	8	2	7
10-14	32	32	23	23	9	9	8	7
15-19	104	43	66	30	38	13	37	13
20-24	174	76	130	50	44	26	41	25
25-29	250	119	179	64	71	55	65	49
30-34	415	174	317	113	98	61	85	58
35-39	711	267	527	186	184	81	169	76
40-44	1347	493	1056	343	291	150	269	139
45-49	2533	858	2078	615	455	243	433	234
50-54	4688	1664	3959	1260	729	404	672	390
55-59	7455	2962	6422	2356	1033	606	951	573
60-64	10423	5117	9169	4261	1254	856	1175	825
65-69	14203	8448	12641	7190	1562	1258	1439	1196
70-74	17551	13316	15900	11739	1651	1577	1510	1510
75 up	65131	99246	60748	93384	4383	5862	3944	5462
Not Stated	33	12	22	6	11	7	10	7
TOTALS	125176	132940	113332	121693	11844	11247	10834	10595
SUM BY RACE	258116		235025		23091		21429	

Table 12-B-26
ALL DEATHS IN THE UNITED STATES, 1979
AGES 5-54 ONLY
SELECTED CONDITIONS FOR WHICH HEART TRANSPLANTATION IS INDICATED

<u>AGE</u>	<u>ALL RACES</u>		<u>WHITE</u>		<u>ALL OTHER</u>		<u>BLACK ONLY</u>	
	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>
0-4								
5-9	20	21	18	13	2	8	2	7
10-14	32	32	23	23	9	9	8	7
15-19	104	43	66	30	38	18	37	13
20-24	174	76	130	50	44	26	41	25
25-29	250	119	179	64	71	55	65	49
30-34	415	174	317	113	98	61	85	58
35-39	711	267	527	186	184	81	169	76
40-44	1347	493	1056	343	291	150	269	139
45-49	2533	858	2078	615	455	243	433	234
50-54	4688	1664	3959	1260	729	404	672	390
55-59								
60-64								
65-69								
70-74								
75 up								
Not Stated	33	12	22	6	11	7	10	7
TOTALS	10307	3759	8375	2702	1932	1057	1791	1005
SUM BY RACE	14066		11078		2989		2796	

Table 12-8-27
ALL DEATHS IN THE UNITED STATES, 1979
AGES 10-54 ONLY
SELECTED CONDITIONS FOR WHICH HEART TRANSPLANTATION IS INDICATED

<u>AGE</u>	<u>ALL RACES</u>		<u>WHITE</u>		<u>ALL OTHER</u>		<u>BLACK ONLY</u>	
	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>
0-4								
5-9								
10-14	32	32	23	23	9	9	8	7
15-19	104	43	66	30	38	13	37	13
20-24	174	76	130	50	44	26	41	25
25-29	250	119	179	64	71	55	65	49
30-34	415	174	317	113	98	61	85	58
35-39	711	267	527	186	184	81	169	76
40-44	1347	493	1056	343	291	150	269	139
45-49	2533	858	2078	615	455	243	433	234
50-54	4688	1664	3959	1260	729	404	672	390
55-59								
60-64								
65-69								
70-74								
75 up								
Not Stated	33	12	22	6	11	7	10	7
TOTALS	10287	3738	8357	2689	1930	1049	1789	998
SUM BY RACE	14025		11047		2979		2787	

Table 12-B-28
ALL DEATHS IN THE UNITED STATES, 1979
AGES 5-49 ONLY
SELECTED CONDITIONS FOR WHICH HEART TRANSPLANTATION IS INDICATED

<u>AGE</u>	<u>ALL RACES</u>		<u>WHITE</u>		<u>ALL OTHER</u>		<u>BLACK ONLY</u>	
	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>
0-4								
5-9	20	21	18	13	2	8	2	7
10-14	32	32	23	23	9	9	8	7
15-19	104	43	66	30	38	18	37	13
20-24	174	76	130	50	44	26	41	25
25-29	250	119	179	64	71	55	65	49
30-34	415	174	317	113	98	61	85	58
35-39	711	267	527	186	184	81	169	76
40-44	1347	493	1056	343	291	150	269	139
45-49	2533	858	2078	615	455	243	433	234
50-54								
55-59								
60-64								
65-69								
70-74								
75 up								
Not Stated	33	12	22	6	11	7	10	7
TOTALS	5619	2095	4416	1442	1203	653	1119	615
SUM BY RACE	7714		5859		1856		1734	

Table 12-B-29
ALL DEATHS IN THE UNITED STATES, 1979
AGES 10-49 ONLY
SELECTED CONDITIONS FOR WHICH HEART TRANSPLANTATION IS INDICATED

<u>AGE</u>	<u>ALL RACES</u>		<u>WHITE</u>		<u>ALL OTHER</u>		<u>BLACK ONLY</u>	
	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>
0-4								
5-9								
10-14	32	32	23	23	9	9	8	7
15-19	104	43	66	30	38	13	37	13
20-24	174	76	130	50	44	26	41	25
25-29	250	119	179	64	71	55	65	49
30-34	415	174	317	113	98	61	85	58
35-39	711	267	527	186	184	81	169	76
40-44	1347	493	1056	343	291	150	269	139
45-49	2533	858	2078	615	455	243	433	234
50-54								
55-59								
60-64								
65-69								
70-74								
75 up								
Not Stated	33	12	22	6	11	7	10	7
TOTALS	5599	2074	4398	1430	1201	645	1117	608
SUM BY RACE	7673		5828		1846		1725	

APPENDIX 12-C

DETAILED MORTALITY TABLES FOR 1978

Table 12-C-1
ALL DEATHS IN THE UNITED STATES, 1978
MALIGNANT NEOPLASM OF THE TRUNK
ICDA-8-REV. 171.1

<u>AGE</u>	<u>ALL RACES</u>		<u>WHITE</u>		<u>ALL OTHER</u>		<u>BLACK ONLY</u>	
	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>
0-4	1	3	1	2	0	1		
5-9	2	2	1	1	1	1		
10-14	3	1	3	0	0	1		
15-19	1	1	1	1	0	0		
20-24	2	1	1	1	1	0		
25-29	9	3	9	3	0	0		
30-34	2	3	2	2	0	1		
35-39	4	4	4	3	0	1		
40-44	4	5	4	4	0	1		
45-49	3	10	2	8	1	2		
50-54	11	7	10	5	1	2		
55-59	7	13	6	11	1	2		
60-64	26	18	21	17	5	1		
65-69	20	18	20	14	0	4		
70-74	22	15	20	12	2	3		
75 up	22	40	22	40	0	0		
Not Stated	0	0	0	0	0	0		
TOTALS	139	144	127	124	12	20	0	0
SUM BY RACE	283		251		32		0	

Table 12-C-2
ALL DEATHS IN THE UNITED STATES, 1978
DISEASES OF THE MITRAL VALVE SPECIFIED AS RHEUMATIC
ICDA-8-REV. 394.0

	<u>ALL RACES</u>		<u>WHITE</u>		<u>ALL OTHER</u>		<u>BLACK ONLY</u>	
<u>AGE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>
0-4	0	0	0	0	0	0		
5-9	0	0	0	0	0	0		
10-14	0	1	0	0	0	1		
15-19	2	4	1	2	1	2		
20-24	1	3	0	2	1	1		
25-29	2	5	0	3	2	2		
30-34	5	6	3	4	2	2		
35-39	9	21	6	13	3	8		
40-44	12	33	11	29	1	4		
45-49	29	64	26	54	3	10		
50-54	32	81	31	74	1	7		
55-59	72	113	67	102	5	11		
60-64	70	171	64	160	6	11		
65-69	93	204	89	202	4	2		
70-74	65	183	64	182	1	1		
75 up	79	271	77	267	2	4		
Not Stated	0	0	0	0	0	0		
TOTALS	471	1160	439	1094	32	66	0	0
SUM BY RACE	1631		1533		98		0	

Table 12-C-3
ALL DEATHS IN THE UNITED STATES, 1978
DISEASES OF THE MITRAL VALVE NOT SPECIFIED AS RHEUMATIC
ICDA-8-REV. 394.9

<u>AGE</u>	<u>ALL RACES</u>		<u>WHITE</u>		<u>ALL OTHER</u>		<u>BLACK ONLY</u>	
	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>
0-4	5	2	4	0	1	2		
5-9	3	2	3	2	0	0		
10-14	1	2	1	1	0	1		
15-19	2	5	1	2	0	3		
20-24	10	14	7	11	3	3		
25-29	6	14	3	8	3	6		
30-34	8	9	5	7	3	2		
35-39	10	21	7	18	3	3		
40-44	17	37	15	29	2	8		
45-49	32	48	28	32	4	16		
50-54	70	85	56	75	14	10		
55-59	108	98	96	86	12	12		
60-64	102	153	93	140	9	13		
65-69	148	193	138	181	10	12		
70-74	111	182	103	167	8	15		
75 up	233	485	223	454	10	31		
Not Stated	0	0	0	0	0	0		
TOTALS	865	1350	783	1213	82	137	0	0
SUM BY RACE	2215		1996		219		0	

Table 12-C-4
ALL DEATHS IN THE UNITED STATES, 1978
DISEASES OF THE AORTIC VALVE SPECIFIED AS RHEUMATIC
ICDA-8-REV. 395.0

<u>AGE</u>	<u>ALL RACES</u>		<u>WHITE</u>		<u>ALL OTHER</u>		<u>BLACK ONLY</u>	
	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>
0-4	0	0	0	0	0	0		
5-9	0	0	0	0	0	0		
10-14	0	0	0	0	0	0		
15-19	2	1	2	0	0	1		
20-24	3	0	3	0	0	0		
25-29	4	1	4	1	0	0		
30-34	11	6	8	3	3	3		
35-39	8	3	5	3	3	0		
40-44	12	6	9	6	3	0		
45-49	26	9	23	7	3	2		
50-54	28	9	26	9	2	0		
55-59	32	25	29	23	3	2		
60-64	36	23	35	19	1	4		
65-69	48	36	44	35	4	1		
70-74	50	35	45	32	5	3		
75 up	63	90	62	84	1	6		
Not Stated	0	0	0	0	0	0		
TOTALS	323	244	295	222	28	22	0	0
SUM BY RACE	567		517		50		0	

Table 12-C-5
ALL DEATHS IN THE UNITED STATES, 1978
DISEASES OF THE AORTIC VALVE NOT SPECIFIED AS RHEUMATIC
ICDA-8-REV. 395.9

<u>AGE</u>	<u>ALL RACES</u>		<u>WHITE</u>		<u>ALL OTHER</u>		<u>BLACK ONLY</u>	
	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>
0-4	3	3	3	1	0	2		
5-9	1	0	1	0	0	0		
10-14	5	0	4	0	1	0		
15-19	8	1	6	1	2	0		
20-24	16	5	15	4	1	1		
25-29	20	3	15	2	5	1		
30-34	17	12	12	8	5	4		
35-39	32	3	30	3	2	0		
40-44	49	17	35	11	14	6		
45-49	63	28	56	19	7	9		
50-54	130	32	111	24	19	8		
55-59	187	84	166	67	21	17		
60-64	294	113	279	94	15	19		
65-69	317	215	288	189	29	26		
70-74	406	286	375	262	31	24		
75 up	864	1033	809	962	55	71		
Not Stated	0	1	0	0	0	1		
TOTALS	2412	1836	2205	1647	207	189	0	0
SUM BY RACE	4248		3852		396		0	

Table 12-C-6
ALL DEATHS IN THE UNITED STATES, 1978
DISEASES OF THE MITRAL AND AORTIC VALVES SPECIFIED AS RHEUMATIC
ICDA-8-REV. 396.0

<u>AGE</u>	<u>ALL RACES</u>		<u>WHITE</u>		<u>ALL OTHER</u>		<u>BLACK ONLY</u>	
	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>
0-4	0	0	0	0	0	0		
5-9	0	0	0	0	0	0		
10-14	1	1	0	1	1	0		
15-19	2	0	0	0	2	0		
20-24	2	3	0	0	2	3		
25-29	2	3	1	2	1	1		
30-34	8	3	7	3	1	0		
35-39	11	10	7	5	4	5		
40-44	9	14	7	13	2	1		
45-49	18	19	14	17	4	2		
50-54	22	33	21	30	1	3		
55-59	35	46	33	45	2	1		
60-64	31	46	30	44	1	2		
65-69	41	66	39	63	2	3		
70-74	25	56	24	52	1	4		
75 up	23	88	23	87	0	1		
Not Stated	0	0	0	0	0	0		
TOTALS	230	388	206	362	24	26	0	0
SUM BY RACE	618		568		50		0	

Table 12-C-7
ALL DEATHS IN THE UNITED STATES, 1978
DISEASES OF THE MITRAL AND AORTIC VALVES NOT SPECIFIED AS RHEUMATIC
ICDA-8-REV. 396.9

<u>AGE</u>	<u>ALL RACES</u>		<u>WHITE</u>		<u>ALL OTHER</u>		<u>BLACK ONLY</u>	
	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>
0-4	0	1	0	1	0	0		
5-9	0	0	0	0	0	0		
10-14	1	0	0	0	1	0		
15-19	1	0	0	0	1	0		
20-24	3	1	1	0	2	1		
25-29	1	3	1	1	0	2		
30-34	7	3	6	2	1	1		
35-39	4	3	1	3	3	0		
40-44	8	2	7	1	1	1		
45-49	10	9	10	6	0	3		
50-54	15	10	12	8	3	2		
55-59	26	18	22	16	4	2		
60-64	27	20	24	18	3	2		
65-69	39	28	35	25	4	3		
70-74	27	35	25	34	2	1		
75 up	61	110	58	104	3	6		
Not Stated	0	0	0	0	0	0		
TOTALS	230	243	202	219	28	24	0	0
SUM BY RACE	473		421		52		0	

Table 12-C-8
ALL DEATHS IN THE UNITED STATES, 1978
OTHER HEART DISEASES SPECIFIED AS RHEUMATIC
ICDA-8-REV. 398

<u>AGE</u>	<u>ALL RACES</u>		<u>WHITE</u>		<u>ALL OTHER</u>		<u>BLACK ONLY</u>	
	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>
0-4	0	0	0	0	0	0		
5-9	0	2	0	0	0	2		
10-14	2	3	1	1	1	2		
15-19	5	0	1	0	4	0		
20-24	15	7	7	4	8	3		
25-29	8	11	6	7	2	4		
30-34	20	19	15	13	5	6		
35-39	21	28	19	22	2	6		
40-44	39	38	29	29	10	9		
45-49	42	70	38	55	4	15		
50-54	94	105	83	89	11	16		
55-59	115	164	105	150	10	14		
60-64	114	252	106	232	8	20		
65-69	165	305	158	291	7	14		
70-74	134	348	130	338	4	10		
75 up	189	608	172	585	17	23		
Not Stated	1	0	1	0	0	0		
TOTALS	964	1960	871	1816	93	144	0	0
SUM BY RACE	2924		2687		237		0	

Table 12-C-9
ALL DEATHS IN THE UNITED STATES, 1978
CHRONIC ISCHEMIC HEART DISEASE
ICDA-8-REV. 412

<u>AGE</u>	<u>ALL RACES</u>		<u>WHITE</u>		<u>ALL OTHER</u>		<u>BLACK ONLY</u>	
	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>
0-4	1	0	1	0	0	0		
5-9	4	0	3	0	1	0		
10-14	0	1	0	1	0	0		
15-19	3	3	3	2	0	1		
20-24	27	11	21	5	6	6		
25-29	114	38	80	16	34	22		
30-34	310	70	225	42	85	28		
35-39	811	189	614	123	197	66		
40-44	1700	514	1294	286	406	228		
45-49	3622	1070	2880	678	742	392		
50-54	6894	2216	5602	1517	1292	699		
55-59	10836	3919	9032	2888	1804	1031		
60-64	15367	6737	13222	5299	2145	1438		
65-69	19624	10956	17077	9006	2547	1950		
70-74	23867	17304	21290	14968	2577	2336		
75 up	83476	125399	77249	116929	6227	8470		
Not Stated	82	48	62	32	20	16		
TOTALS	166738	168475	148655	151792	18083	16683	0	0
SUM BY RACE	335213		300447		34766		0	

Table 12-C-10
ALL DEATHS IN THE UNITED STATES, 1978
ACUTE MYOCARDITIS
ICDA-8-REV. 422

<u>AGE</u>	<u>ALL RACES</u>		<u>WHITE</u>		<u>ALL OTHER</u>		<u>BLACK ONLY</u>	
	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>
0-4	16	18	10	15	6	3		
5-9	7	5	3	2	4	3		
10-14	4	2	3	1	1	1		
15-19	15	15	11	12	4	3		
20-24	19	9	11	5	8	4		
25-29	12	6	9	4	3	2		
30-34	12	12	8	10	4	2		
35-39	15	8	13	8	2	0		
40-44	7	2	7	2	0	0		
45-49	7	10	5	9	2	1		
50-54	9	12	8	11	1	1		
55-59	7	12	6	9	1	3		
60-64	10	3	9	3	1	0		
65-69	9	4	8	4	1	0		
70-74	12	12	12	11	0	1		
75 up	11	20	9	17	2	3		
Not Stated	0	0	0	0	0	0		
TOTALS	172	150	132	123	40	27	0	0
SUM BY RACE	322		255		67		0	

Table 12-C-11
ALL DEATHS IN THE UNITED STATES, 1978
CHRONIC DISEASE OF ENDOCARDIUM (OF AORTIC VALVE, NONRHEUMATIC)
ICDA-8-REV. 424.1

<u>AGE</u>	<u>ALL RACES</u>		<u>WHITE</u>		<u>ALL OTHER</u>		<u>BLACK ONLY</u>	
	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>
0-4	0	0	0	0	0	0		
5-9	0	0	0	0	0	0		
10-14	0	0	0	0	0	0		
15-19	0	0	0	0	0	0		
20-24	0	0	0	0	0	0		
25-29	0	0	0	0	0	0		
30-34	1	0	1	0	0	0		
35-39	0	0	0	0	0	0		
40-44	1	1	0	0	1	1		
45-49	0	0	0	0	0	0		
50-54	2	0	2	0	0	0		
55-59	3	0	2	0	1	0		
60-64	8	1	7	1	1	0		
65-69	14	9	11	9	3	0		
70-74	22	14	21	13	1	1		
75 up	41	63	39	60	2	3		
Not Stated	0	0	0	0	0	0		
TOTALS	92	88	83	83	9	5	0	0
SUM BY RACE	180		166		14		0	

Table 12-C-12
ALL DEATHS IN THE UNITED STATES, 1978
CARDIOMYOPATHY
ICDA-8-REV. 425

<u>AGE</u>	<u>ALL RACES</u>		<u>WHITE</u>		<u>ALL OTHER</u>		<u>BLACK ONLY</u>	
	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>
0-4	37	39	25	24	12	15		
5-9	7	8	5	5	2	3		
10-14	22	20	18	14	4	6		
15-19	59	22	40	16	19	6		
20-24	63	27	46	16	17	11		
25-29	74	31	51	21	23	10		
30-34	99	42	62	22	37	20		
35-39	131	48	83	29	48	19		
40-44	171	66	101	42	70	24		
45-49	263	116	181	74	82	42		
50-54	407	154	315	116	92	38		
55-59	551	247	443	184	108	63		
60-64	565	239	468	194	97	45		
65-69	497	250	401	190	96	60		
70-74	305	182	264	154	41	28		
75 up	367	364	314	320	53	44		
Not Stated	1	0	1	0	0	0		
TOTALS	3619	1855	2828	1421	801	434	0	0
SUM BY RACE	5474		4239		1235		0	

Table 12-C-13
ALL DEATHS IN THE UNITED STATES, 1978
CONGESTIVE HEART FAILURE
ICDA-8-REV. 427.0

<u>AGE</u>	<u>ALL RACES</u>		<u>WHITE</u>		<u>ALL OTHER</u>		<u>BLACK ONLY</u>	
	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>
0-4	34	25	25	14	9	11		
5-9	0	4	0	4	0	0		
10-14	6	5	34	4	3	1		
15-19	6	6	6	5	0	1		
20-24	12	8	9	6	3	2		
25-29	9	12	7	4	2	8		
30-34	18	12	11	9	7	3		
35-39	30	13	18	8	12	5		
40-44	54	28	44	17	10	11		
45-49	120	57	92	35	28	22		
50-54	235	139	183	95	52	44		
55-59	358	252	281	171	77	82		
60-64	586	414	488	310	98	104		
65-69	968	645	820	500	148	145		
70-74	1258	1091	1091	920	167	171		
75 up	4786	7178	4356	6620	430	558		
Not Stated	3	2	1	2	2	0		
TOTALS	8483	9891	7435	8724	1048	1167	0	0
SUM BY RACE	18374		16159		2215		0	

Table 12-C-14
ALL DEATHS IN THE UNITED STATES, 1978
LEFT VENTRICULAR FAILURE
ICDA-8-REV. 427.1

<u>AGE</u>	<u>ALL RACES</u>		<u>WHITE</u>		<u>ALL OTHER</u>		<u>BLACK ONLY</u>	
	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>
0-4	1	2	1	2	0	0		
5-9	0	0	0	0	0	0		
10-14	0	0	0	0	0	0		
15-19	0	0	0	0	0	0		
20-24	2	1	1	1	1	0		
25-29	1	1	1	0	0	1		
30-34	2	1	2	1	0	0		
35-39	5	2	2	1	3	1		
40-44	4	2	4	1	0	1		
45-49	7	4	5	3	2	1		
50-54	3	1	3	1	0	0		
55-59	10	14	9	12	1	2		
60-64	12	8	10	7	2	1		
65-69	12	15	10	14	2	1		
70-74	13	14	12	13	1	1		
75 up	57	75	56	70	1	5		
Not Stated	0	0	0	0	0	0		
TOTALS	129	140	116	126	13	14	0	0
SUM BY RACE	269		242		27		0	

Table 12-C-15
ALL DEATHS IN THE UNITED STATES, 1978
OTHER MYOCARDIAL INSUFFICIENCY
ICDA-8-REV. 428

<u>AGE</u>	<u>ALL RACES</u>		<u>WHITE</u>		<u>ALL OTHER</u>		<u>BLACK ONLY</u>	
	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>
0-4	22	20	17	14	5	6		
5-9	6	5	5	4	1	1		
10-14	14	7	9	5	5	2		
15-19	22	9	20	5	2	4		
20-24	20	14	17	8	3	6		
25-29	28	14	21	12	7	2		
30-34	26	20	16	14	10	6		
35-39	27	17	18	14	9	3		
40-44	30	25	21	18	9	7		
45-49	55	35	39	27	16	8		
50-54	86	47	74	35	12	12		
55-59	97	46	83	31	14	15		
60-64	135	71	115	60	20	11		
65-69	150	86	129	68	21	18		
70-74	159	118	137	104	22	14		
75 up	530	843	477	783	53	60		
Not Stated	0	1	0	0	0	1		
TOTALS	1407	1378	1198	1202	209	176	0	0
SUM BY RACE	2785		2400		385		0	

Table 12-C-16
ALL DEATHS IN THE UNITED STATES, 1978
ILL-DEFINED HEART DISEASE (OTHER AND UNSPECIFIED)
ICDA-8-REV. 429.9

<u>AGE</u>	<u>ALL RACES</u>		<u>WHITE</u>		<u>ALL OTHER</u>		<u>BLACK ONLY</u>	
	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>
0-4	10	13	6	10	4	3		
5-9	4	1	3	1	1	0		
10-14	2	1	2	1	0	0		
15-19	0	6	0	3	0	3		
20-24	10	3	5	3	5	0		
25-29	14	13	9	9	5	4		
30-34	29	7	23	5	6	2		
35-39	58	20	48	9	10	11		
40-44	82	31	60	16	22	15		
45-49	180	53	137	36	43	17		
50-54	334	94	273	73	61	21		
55-59	441	155	368	106	73	49		
60-64	579	194	502	140	77	54		
65-69	714	297	610	222	104	75		
70-74	690	333	588	250	102	83		
75 up	1307	1183	1118	996	189	187		
Not Stated	2	1	0	1	2	0		
TOTALS	4456	2405	3752	1881	704	524	0	0
SUM BY RACE	6861		5633		1228		0	

Table 12-C-17
ALL DEATHS IN THE UNITED STATES, 1978
SUMMARY OF ALL AGES AND ALL CONDITIONS
SELECTED CONDITIONS FOR WHICH HEART TRANSPLANTATION IS INDICATED

<u>AGE</u>	<u>ALL RACES</u>		<u>WHITE</u>		<u>ALL OTHER</u>		<u>BLACK ONLY</u>	
	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>
0-4	130	126	93	83	37	43		
5-9	34	29	24	19	10	10		
10-14	61	44	44	29	17	15		
15-19	127	73	92	49	35	24		
20-24	205	107	144	66	61	41		
25-29	304	158	217	93	87	65		
30-34	575	225	406	145	169	80		
35-39	1176	390	875	262	301	128		
40-44	2199	821	1648	504	551	317		
45-49	4477	1602	3536	1060	941	542		
50-54	8372	3025	6810	2162	1562	863		
55-59	12885	5206	10748	3901	2137	1305		
60-64	17962	8463	15473	6738	2489	1725		
65-69	22859	13327	19877	11013	2982	2314		
70-74	27166	20208	24201	17512	2965	2696		
75 up	92109	137850	85064	128378	7045	9472		
Not Stated	89	53	65	35	24	18		
TOTALS	190730	191707	169317	172049	21413	19658	0	0
SUM BY RACE	382437		341366		41071		0	

Table 12-C-18
ALL DEATHS IN THE UNITED STATES, 1978
AGES 5-54 ONLY
SELECTED CONDITIONS FOR WHICH HEART TRANSPLANTATION IS INDICATED

<u>AGE</u>	<u>ALL RACES</u>		<u>WHITE</u>		<u>ALL OTHER</u>		<u>BLACK ONLY</u>	
	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>
0-4								
5-9	34	29	24	19	10	10		
10-14	61	44	44	29	17	15		
15-19	127	73	92	49	35	24		
20-24	205	107	144	66	61	41		
25-29	304	158	217	93	87	65		
30-34	575	225	406	145	169	80		
35-39	1176	390	875	262	301	128		
40-44	2199	821	1648	504	551	317		
45-49	4477	1602	3536	1060	941	542		
50-54	8372	3025	6810	2162	1562	863		
55-59								
60-64								
65-69								
70-74								
75 up								
Not Stated	89	53	65	35	24	18		
TOTALS	17619	6527	13861	4424	3758	2103	0	0
SUM BY RACE	24146		18285		5861		0	

Table 12-C-19
ALL DEATHS IN THE UNITED STATES, 1978
AGES 10-54 ONLY
SELECTED CONDITIONS FOR WHICH HEART TRANSPLANTATION IS INDICATED

<u>AGE</u>	<u>ALL RACES</u>		<u>WHITE</u>		<u>ALL OTHER</u>		<u>BLACK ONLY</u>	
	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>
0-4								
5-9								
10-14	61	44	44	29	17	15		
15-19	127	73	92	49	35	24		
20-24	205	107	144	66	61	41		
25-29	304	158	217	93	87	65		
30-34	575	225	406	145	169	80		
35-39	1176	390	875	262	301	128		
40-44	2199	821	1648	504	551	317		
45-49	4477	1602	3536	1060	941	542		
50-54	8372	3025	6810	2162	1562	863		
55-59								
60-64								
65-69								
70-74								
75 up								
Not Stated	89	53	65	35	24	18		
TOTALS	17585	6498	13837	4405	3748	2093	0	0
SUM BY RACE	24083		18242		5841		0	

Table 12-C-20
ALL DEATHS IN THE UNITED STATES, 1978
AGES 5-49 ONLY
SELECTED CONDITIONS FOR WHICH HEART TRANSPLANTATION IS INDICATED

<u>AGE</u>	<u>ALL RACES</u>		<u>WHITE</u>		<u>ALL OTHER</u>		<u>BLACK ONLY</u>	
	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>
0-4								
5-9	34	29	24	19	10	10		
10-14	61	44	44	29	17	15		
15-19	127	73	92	49	35	24		
20-24	205	107	144	66	61	41		
25-29	304	158	217	93	87	65		
30-34	575	225	406	145	169	80		
35-39	1176	390	875	262	301	128		
40-44	2199	821	1648	504	551	317		
45-49	4477	1602	3536	1060	941	542		
50-54								
55-59								
60-64								
65-69								
70-74								
75 up								
Not Stated	89	53	65	35	24	18		
TOTALS	9247	3502	7051	2262	2196	1240	0	0
SUM BY RACE	12749		9313		3436		0	

Table 12-C-21
ALL DEATHS IN THE UNITED STATES, 1978
AGES 10-49 ONLY
SELECTED CONDITIONS FOR WHICH HEART TRANSPLANTATION IS INDICATED

<u>AGE</u>	<u>ALL RACES</u>		<u>WHITE</u>		<u>ALL OTHER</u>		<u>BLACK ONLY</u>	
	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>
0-4								
5-9								
10-14	61	44	44	29	17	15		
15-19	127	73	92	49	35	24		
20-24	205	107	144	66	61	41		
25-29	304	158	217	93	87	65		
30-34	575	225	406	145	169	80		
35-39	1176	390	875	262	301	128		
40-44	2199	821	1648	504	551	317		
45-49	4477	1602	3536	1060	941	542		
50-54								
55-59								
60-64								
65-69								
70-74								
75 up								
Not Stated	89	53	65	35	24	18		
TOTALS	9213	3473	7027	2243	2186	1230	0	0
SUM BY RACE	12686		9270		3416		0	



APPENDIX 12-D

DETAILED MORTALITY TABLES FOR 1977

Table 12-D-1
ALL DEATHS IN THE UNITED STATES, 1977
MALIGNANT NEOPLASM OF THE TRUNK
ICDA-8-REV. 171.1

AGE	ALL RACES		WHITE		ALL OTHER		BLACK ONLY	
	MALE	FEMALE	MALE	FEMALE	MALE	FEMALE	MALE	FEMALE
0-4	6	1	4	1	2	0		
5-9	2	1	2	1	0	0		
10-14	2	1	2	1	0	0		
15-19	3	1	2	1	1	0		
20-24	1	1	1	1	0	0		
25-29	4	7	3	6	1	1		
30-34	2	0	2	0	0	0		
35-39	6	5	5	4	1	1		
40-44	5	6	4	4	1	1		
45-49	7	11	6	9	1	2		
50-54	10	8	10	6	0	2		
55-59	19	20	16	18	3	2		
60-64	12	19	9	18	3	1		
65-69	14	11	14	10	0	1		
70-74	19	11	16	11	3	0		
75 up	18	32	17	30	1	2		
Not Stated	0	0	0	0	0	0		
TOTALS	130	135	113	121	17	14	0	0
SUM BY RACE	265		234		31		0	

Table 12-D-2
ALL DEATHS IN THE UNITED STATES, 1977
DISEASES OF THE MITRAL VALVE SPECIFIED AS RHEUMATIC
ICDA-8-REV. 394.0

<u>AGE</u>	<u>ALL RACES</u>		<u>WHITE</u>		<u>ALL OTHER</u>		<u>BLACK ONLY</u>	
	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>
0-4	0	0	0	0	0	0		
5-9	0	0	0	0	0	0		
10-14	1	5	0	3	1	2		
15-19	3	0	2	0	1	0		
20-24	3	7	1	5	2	2		
25-29	3	8	3	5	0	3		
30-34	5	16	5	14	0	2		
35-39	13	27	8	18	5	9		
40-44	23	34	17	28	6	6		
45-49	22	47	21	42	1	5		
50-54	52	113	50	102	2	11		
55-59	74	131	69	121	5	10		
60-64	83	173	77	160	6	13		
65-69	74	167	69	159	5	8		
70-74	56	170	55	165	4	5		
75 up	82	246	78	241	1	5		
Not Stated	0	0	0	0	0	0		
TOTALS	494	1144	455	1063	39	81	0	0
SUM BY RACE	1638		1518		120		0	

Table 12-D-3
ALL DEATHS IN THE UNITED STATES, 1977
DISEASES OF THE MITRAL VALVE NOT SPECIFIED AS RHEUMATIC
ICDA-8-REV. 394.9

<u>AGE</u>	<u>ALL RACES</u>		<u>WHITE</u>		<u>ALL OTHER</u>		<u>BLACK ONLY</u>	
	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>
0-4	2	1	2	0	0	1		
5-9	1	0	1	0	0	0		
10-14	3	2	2	2	1	0		
15-19	4	5	4	4	0	1		
20-24	5	12	3	9	2	3		
25-29	7	10	3	8	4	2		
30-34	10	13	7	11	3	2		
35-39	6	21	4	15	2	6		
40-44	19	38	16	26	3	12		
45-49	44	53	35	39	9	14		
50-54	52	95	47	77	5	18		
55-59	79	104	73	95	6	9		
60-64	116	151	105	142	11	9		
65-69	129	148	122	138	7	10		
70-74	124	178	118	163	6	15		
75 up	178	360	168	345	10	15		
Not Stated	0	0	0	0	0	0		
TOTALS	779	1191	710	1074	69	117	0	0
SUM BY RACE	1970		1784		186		0	

Table 12-D-4
ALL DEATHS IN THE UNITED STATES, 1977
DISEASES OF THE AORTIC VALVE SPECIFIED AS RHEUMATIC
ICDA-8-REV. 395.0

<u>AGE</u>	<u>ALL RACES</u>		<u>WHITE</u>		<u>ALL OTHER</u>		<u>BLACK ONLY</u>	
	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>
0-4	0	0	0	0	0	0		
5-9	0	0	0	0	0	0		
10-14	0	1	0	0	0	1		
15-19	1	1	0	0	1	1		
20-24	5	0	3	0	2	0		
25-29	5	1	4	0	1	1		
30-34	14	2	10	2	4	0		
35-39	6	7	6	6	0	1		
40-44	10	8	10	6	0	2		
45-49	26	5	24	5	2	0		
50-54	33	14	29	11	4	3		
55-59	56	21	51	20	5	1		
60-64	48	15	46	15	2	0		
65-69	46	42	43	40	3	2		
70-74	49	49	48	45	1	4		
75 up	66	93	63	91	3	2		
Not Stated	0	0	0	0	0	0		
TOTALS	365	259	337	241	28	18	0	0
SUM BY RACE	625		578		46		0	

Table 12-D-5
ALL DEATHS IN THE UNITED STATES, 1977
DISEASES OF THE AORTIC VALVE NOT SPECIFIED AS RHEUMATIC
ICDA-8-REV. 395.9

AGE	ALL RACES		WHITE		ALL OTHER		BLACK ONLY	
	MALE	FEMALE	MALE	FEMALE	MALE	FEMALE	MALE	FEMALE
0-4	3	1	3	1	0	0		
5-9	1	1	1	0	0	1		
10-14	4	4	3	2	1	2		
15-19	15	2	12	1	3	1		
20-24	16	7	13	4	3	3		
25-29	27	10	19	4	8	6		
30-34	23	5	18	3	5	2		
35-39	36	9	30	5	6	4		
40-44	52	12	45	10	7	2		
45-49	57	24	45	20	12	4		
50-54	133	50	113	45	20	5		
55-59	184	62	170	56	14	6		
60-64	263	119	240	97	23	22		
65-69	325	207	291	181	34	26		
70-74	349	219	321	201	28	18		
75 up	695	799	652	748	43	51		
Not Stated	0	0	0	0	0	0		
TOTALS	2183	1531	1976	1378	207	153	0	0
SUM BY RACE	3714		3354		360		0	

Table 12-D-6
ALL DEATHS IN THE UNITED STATES, 1977
DISEASES OF THE MITRAL AND AORTIC VALVES SPECIFIED AS RHEUMATIC
ICDA-8-REV. 396.0

<u>AGE</u>	<u>ALL RACES</u>		<u>WHITE</u>		<u>ALL OTHER</u>		<u>BLACK ONLY</u>	
	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>
0-4	0	0	0	0	0	0		
5-9	0	0	0	0	0	0		
10-14	1	0	1	0	0	0		
15-19	2	0	0	0	2	0		
20-24	2	2	1	1	1	1		
25-29	4	3	3	2	1	1		
30-34	4	4	4	2	0	2		
35-39	6	10	6	9	0	1		
40-44	13	17	12	14	1	3		
45-49	20	13	17	12	3	1		
50-54	24	31	20	29	4	2		
55-59	30	41	28	40	2	1		
60-64	49	52	45	50	4	2		
65-69	43	51	41	51	2	0		
70-74	28	64	28	60	0	4		
75 up	35	73	34	70	1	3		
Not Stated	0	0	0	0	0	0		
TOTALS	261	361	240	340	21	21	0	0
SUM BY RACE	622		580		42		0	

Table 12-D-7
ALL DEATHS IN THE UNITED STATES, 1977
DISEASES OF THE MITRAL AND AORTIC VALVES NOT SPECIFIED AS RHEUMATIC
ICDA-8-REV. 396.9

<u>AGE</u>	<u>ALL RACES</u>		<u>WHITE</u>		<u>ALL OTHER</u>		<u>BLACK ONLY</u>	
	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>
0-4	0	0	0	0	0	0		
5-9	0	0	0	0	0	0		
10-14	2	0	2	0	0	0		
15-19	2	1	1	1	1	0		
20-24	5	1	4	1	1	0		
25-29	7	2	4	2	3	0		
30-34	6	1	5	1	1	0		
35-39	3	4	2	3	1	1		
40-44	11	8	8	7	3	1		
45-49	9	5	8	2	1	3		
50-54	20	6	15	5	5	1		
55-59	27	19	22	16	5	3		
60-64	27	28	26	27	1	1		
65-69	19	23	17	21	2	2		
70-74	35	36	33	33	2	3		
75 up	36	99	34	94	2	5		
Not Stated	0	0	0	0	0	0		
TOTALS	209	233	181	213	28	20	0	0
SUM BY RACE	442		394		48		0	

Table 12-D-8
ALL DEATHS IN THE UNITED STATES, 1977
OTHER HEART DISEASES SPECIFIED AS RHEUMATIC
ICDA-8-REV. 398

<u>AGE</u>	<u>ALL RACES</u>		<u>WHITE</u>		<u>ALL OTHER</u>		<u>BLACK ONLY</u>	
	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>
0-4	0	0	0	0	0	0		
5-9	1	0	0	0	1	0		
10-14	1	3	1	3	0	0		
15-19	8	3	5	1	3	2		
20-24	8	13	3	8	5	5		
25-29	16	22	8	11	8	11		
30-34	15	15	11	9	4	6		
35-39	32	28	27	20	5	8		
40-44	38	52	31	41	7	11		
45-49	52	87	40	71	12	16		
50-54	87	120	78	105	9	15		
55-59	113	180	106	165	7	15		
60-64	152	219	141	208	11	11		
65-69	165	303	156	293	9	10		
70-74	160	361	159	340	1	21		
75 up	198	577	191	554	7	23		
Not Stated	0	0	0	0	0	0		
TOTALS	1046	1983	957	1829	89	154	0	0
SUM BY RACE	3029		2786		243		0	

Table 12-D-9
ALL DEATHS IN THE UNITED STATES, 1977
CHRONIC ISCHEMIC HEART DISEASE
ICDA-8-REV. 412

AGE	ALL RACES		WHITE		ALL OTHER		BLACK ONLY	
	MALE	FEMALE	MALE	FEMALE	MALE	FEMALE	MALE	FEMALE
0-4	1	2	0	1	1	1		
5-9	2	1	2	1	0	0		
10-14	3	1	2	1	1	0		
15-19	8	1	7	1	1	0		
20-24	16	16	10	6	6	10		
25-29	91	29	59	19	32	10		
30-34	320	78	242	42	78	36		
35-39	721	198	515	101	206	97		
40-44	1718	529	1304	305	414	224		
45-49	3679	1127	2904	697	775	430		
50-54	7004	2301	5733	1558	1271	743		
55-59	10420	3859	8697	2819	1723	1040		
60-64	14950	6826	12811	5361	2139	1465		
65-69	19621	11012	17133	9021	2488	1991		
70-74	23048	17034	20412	14545	2636	2489		
75 up	82172	120963	76060	112707	6112	8256		
Not Stated	39	40	29	24	10	16		
TOTALS	163813	164017	145920	147209	17893	16808		
SUM BY RACE	327830		293129		34701			

Table 12-D-10
ALL DEATHS IN THE UNITED STATES, 1977
ACUTE MYOCARDITIS
ICDA-8-REV. 422

<u>AGE</u>	<u>ALL RACES</u>		<u>WHITE</u>		<u>ALL OTHER</u>		<u>BLACK ONLY</u>	
	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>
0-4	17	14	8	11	9	3		
5-9	2	4	2	3	0	1		
10-14	4	3	3	2	1	1		
15-19	10	11	7	10	3	1		
20-24	14	5	11	4	3	1		
25-29	16	8	10	7	6	1		
30-34	6	7	5	6	1	1		
35-39	10	5	10	3	0	2		
40-44	14	10	12	9	2	1		
45-49	6	4	6	3	0	1		
50-54	6	6	5	6	1	0		
55-59	8	11	8	11	0	0		
60-64	7	8	6	7	1	1		
65-69	4	8	4	7	0	1		
70-74	3	6	3	6	0	0		
75 up	16	24	16	23	0	1		
Not Stated	0	1	0	0	0	1		
TOTALS	143	135	116	118	27	17	0	0
SUM BY RACE	278		234		44		0	

Table 12-D-11
ALL DEATHS IN THE UNITED STATES, 1977
CHRONIC DISEASE OF ENDOCARDIUM (OF AORTIC VALVE, NONRHEUMATIC)
ICDA-8-REV. 424.1

<u>AGE</u>	<u>ALL RACES</u>		<u>WHITE</u>		<u>ALL OTHER</u>		<u>BLACK ONLY</u>	
	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>
0-4	0	0	0	0	0	0		
5-9	1	0	1	0	0	0		
10-14	0	0	0	0	0	0		
15-19	0	0	0	0	0	0		
20-24	0	0	0	0	0	0		
25-29	0	0	0	0	0	0		
30-34	1	0	1	0	0	0		
35-39	1	0	1	0	0	0		
40-44	0	0	0	0	0	0		
45-49	1	1	1	1	0	0		
50-54	0	0	0	0	0	0		
55-59	5	2	4	2	1	0		
60-64	8	3	8	3	0	0		
65-69	15	7	13	7	2	0		
70-74	25	6	22	5	3	1		
75 up	48	71	47	65	1	6		
Not Stated	0	0	0	0	0	0		
TOTALS	105	90	98	83	7	7	0	0
SUM BY RACE	195		181		14		0	

Table 12-D-12
ALL DEATHS IN THE UNITED STATES, 1977
CARDIOMYOPATHY
ICDA-8-REV. 425

<u>AGE</u>	<u>ALL RACES</u>		<u>WHITE</u>		<u>ALL OTHER</u>		<u>BLACK ONLY</u>	
	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>
0-4	26	33	18	16	8	17		
5-9	11	10	8	4	3	6		
10-14	13	14	11	10	2	4		
15-19	48	14	29	12	19	2		
20-24	64	29	44	19	20	10		
25-29	78	25	50	14	28	11		
30-34	90	36	57	27	33	9		
35-39	115	45	78	26	37	19		
40-44	153	63	100	39	53	24		
45-49	263	95	190	64	73	31		
50-54	375	164	284	111	91	53		
55-59	438	198	347	151	91	47		
60-64	473	211	373	163	100	48		
65-69	360	223	298	188	62	35		
70-74	264	135	219	106	45	29		
75 up	258	252	223	221	35	31		
Not Stated	0	0	0	0	0	0		
TOTALS	3029	1547	2329	1171	700	376	0	0
SUM BY RACE	4576		3500		1076		0	

Table 12-D-13
ALL DEATHS IN THE UNITED STATES, 1977
CONGESTIVE HEART FAILURE
ICDA-8-REV. 427.0

<u>AGE</u>	<u>ALL RACES</u>		<u>WHITE</u>		<u>ALL OTHER</u>		<u>BLACK ONLY</u>	
	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>
0-4	33	19	24	12	9	7		
5-9	3	6	3	3	0	3		
10-14	6	3	5	2	1	1		
15-19	5	2	3	2	2	0		
20-24	11	9	9	7	2	2		
25-29	17	7	12	6	5	1		
30-34	22	18	15	10	7	8		
35-39	34	12	22	6	12	6		
40-44	73	39	51	25	22	14		
45-49	96	72	70	55	26	17		
50-54	211	155	162	108	49	47		
55-59	382	223	304	163	78	60		
60-64	619	396	506	314	113	82		
65-69	937	686	806	551	131	135		
70-74	1129	921	977	757	152	164		
75 up	4417	6413	4009	5933	408	480		
Not Stated	2	1	2	1	0	0		
TOTALS	7997	8982	6980	7955	1017	1027	0	0
SUM BY RACE	16979		14935		2044		0	

Table 12-D-14
ALL DEATHS IN THE UNITED STATES, 1977
LEFT VENTRICULAR FAILURE
ICDA-8-REV. 427.1

<u>AGE</u>	<u>ALL RACES</u>		<u>WHITE</u>		<u>ALL OTHER</u>		<u>BLACK ONLY</u>	
	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>
0-4	0	0	0	0	0	0		
5-9	0	0	0	0	0	0		
10-14	0	0	0	0	0	0		
15-19	0	0	0	0	0	0		
20-24	4	1	1	1	3	0		
25-29	0	2	0	0	0	2		
30-34	4	0	2	0	2	0		
35-39	1	5	0	4	1	1		
40-44	2	2	1	0	1	2		
45-49	5	1	5	1	0	0		
50-54	5	8	5	5	0	3		
55-59	8	9	6	6	2	3		
60-64	12	10	9	10	3	0		
65-69	20	16	19	13	1	3		
70-74	22	14	20	12	2	2		
75 up	55	77	50	69	5	8		
Not Stated	0	0	0	0	0	0		
TOTALS	138	145	118	121	20	24	0	0
SUM BY RACE	283		239		44		0	

Table 12-D-15
ALL DEATHS IN THE UNITED STATES, 1977
OTHER MYOCARDIAL INSUFFICIENCY
ICDA-8-REV. 428

<u>AGE</u>	<u>ALL RACES</u>		<u>WHITE</u>		<u>ALL OTHER</u>		<u>BLACK ONLY</u>	
	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>
0-4	24	27	16	18	8	9		
5-9	4	1	2	0	2	1		
10-14	2	4	1	3	1	1		
15-19	16	12	12	9	4	3		
20-24	16	12	9	8	7	4		
25-29	25	27	19	19	6	8		
30-34	20	23	15	18	5	5		
35-39	21	18	15	15	6	3		
40-44	35	29	26	22	9	7		
45-49	31	32	23	19	8	13		
50-54	67	37	56	30	11	7		
55-59	77	49	68	35	9	14		
60-64	147	78	127	62	20	16		
65-69	167	76	149	67	18	9		
70-74	158	116	142	98	16	18		
75 up	642	825	598	750	44	75		
Not Stated	1	0	0	0	1	0		
TOTALS	1453	1366	1278	1173	175	193	0	
SUM BY RACE	2819		2451		368		0	

Table 12-D-16
ALL DEATHS IN THE UNITED STATES, 1977
ILL-DEFINED HEART DISEASE (OTHER AND UNSPECIFIED)
ICDA-8-REV. 429.9

<u>AGE</u>	<u>ALL RACES</u>		<u>WHITE</u>		<u>ALL OTHER</u>		<u>BLACK ONLY</u>	
	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>
0-4	14	9	11	8	3	1		
5-9	1	0	1	0	0	0		
10-14	2	0	2	0	0	0		
15-19	7	3	4	2	3	1		
20-24	11	3	10	2	1	1		
25-29	10	10	8	5	2	5		
30-34	24	10	17	9	7	1		
35-39	51	13	42	9	9	4		
40-44	107	23	84	17	23	6		
45-49	178	55	135	33	43	22		
50-54	322	83	263	57	59	26		
55-59	480	125	405	91	75	34		
60-64	577	199	491	161	86	38		
65-69	735	245	629	187	106	58		
70-74	672	301	567	226	105	75		
75 up	1289	1128	1115	944	174	184		
Not Stated	2	1	2	1	0	0		
TOTALS	4482	2208	3786	1752	696	456	0	0
SUM BY RACE	6690		5538		1152		0	

Table 12-D-17
ALL DEATHS IN THE UNITED STATES, 1977
SUMMARY OF ALL AGES AND ALL CONDITIONS
SELECTED CONDITIONS FOR WHICH HEART TRANSPLANTATION IS INDICATED

<u>AGE</u>	<u>ALL RACES</u>		<u>WHITE</u>		<u>ALL OTHER</u>		<u>BLACK ONLY</u>	
	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>
0-4	126	107	86	68	40	39		
5-9	29	24	23	12	6	12		
10-14	44	41	35	29	9	12		
15-19	132	56	88	44	44	12		
20-24	181	118	123	76	58	42		
25-29	310	171	205	108	105	63		
30-34	566	228	416	154	150	74		
35-39	1062	407	771	244	291	163		
40-44	2273	870	1721	553	552	317		
45-49	4496	1632	3530	1073	966	559		
50-54	8401	3191	6870	2255	1531	936		
55-59	12400	5054	10374	3809	2026	1245		
60-64	17543	8507	15020	6798	2523	1709		
65-69	22674	13225	19804	10934	2870	2291		
70-74	26141	19621	23140	16773	3001	2848		
75 up	90205	132032	83355	122885	6850	9147		
Not Stated	44	43	33	26	11	17		
TOTALS	186627	185327	165594	165841	21033	19486	0	0
SUM BY RACE	371954		331435		40519		0	

Table 12-D-18
ALL DEATHS IN THE UNITED STATES, 1977
AGES 5-54 ONLY
SELECTED CONDITIONS FOR WHICH HEART TRANSPLANTATION IS INDICATED

<u>AGE</u>	<u>ALL RACES</u>		<u>WHITE</u>		<u>ALL OTHER</u>		<u>BLACK ONLY</u>	
	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>
0-4								
5-9	29	24	23	12	6	12		
10-14	44	41	35	29	9	12		
15-19	132	56	88	44	44	12		
20-24	181	118	123	76	58	42		
25-29	310	171	205	108	105	63		
30-34	566	228	416	154	150	74		
35-39	1062	407	771	244	291	163		
40-44	2273	870	1721	553	552	317		
45-49	4496	1632	3530	1073	966	559		
50-54	8401	3191	6870	2255	1531	936		
55-59								
60-64								
65-69								
70-74								
75 up								
Not Stated	44	43	33	26	11	17		
TOTALS	17538	6781	13815	4574	3723	2207	0	0
SUM BY RACE	24319		18389		5930		0	

Table 12-D-19
ALL DEATHS IN THE UNITED STATES, 1977
AGES 10-54 ONLY
SELECTED CONDITIONS FOR WHICH HEART TRANSPLANTATION IS INDICATED

<u>AGE</u>	<u>ALL RACES</u>		<u>WHITE</u>		<u>ALL OTHER</u>		<u>BLACK ONLY</u>	
	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>
0-4								
5-9								
10-14	44	41	35	29	9	12		
15-19	132	56	88	44	44	12		
20-24	181	118	123	76	48	42		
25-29	310	171	205	108	105	63		
30-34	566	228	416	154	150	74		
35-39	1062	407	771	244	291	163		
40-44	2273	870	1721	553	552	317		
45-49	4496	1632	3530	1073	966	559		
50-54	8401	3191	6870	2255	1531	936		
55-59								
60-64								
65-69								
70-74								
75 up								
Not Stated	44	43	33	26	11	17		
TOTALS	17509	6757	13792	4562	3717	2195	0	0
SUM BY RACE	24266		18354		5912		0	

Table 12-D-20
ALL DEATHS IN THE UNITED STATES, 1977
AGES 5-49 ONLY
SELECTED CONDITIONS FOR WHICH HEART TRANSPLANTATION IS INDICATED

<u>AGE</u>	<u>ALL RACES</u>		<u>WHITE</u>		<u>ALL OTHER</u>		<u>BLACK ONLY</u>	
	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>
0-4								
5-9	29	24	23	12	6	12		
10-14	44	41	35	29	9	12		
15-19	132	56	88	44	44	12		
20-24	181	118	123	76	58	42		
25-29	310	171	205	108	105	63		
30-34	566	228	416	154	150	74		
35-39	1062	407	771	244	291	163		
40-44	2273	870	1721	553	552	317		
45-49	4496	1632	3530	1073	966	559		
50-54								
55-59								
60-64								
65-69								
70-74								
75 up								
Not Stated	44	43	33	26	11	17		
TOTALS	9137	3590	6945	2319	2192	1271	0	0
SUM BY RACE	12727		9264		3463		0	

Table 12-D-21
ALL DEATHS IN THE UNITED STATES, 1977
AGES 10-49 ONLY
SELECTED CONDITIONS FOR WHICH HEART TRANSPLANTATION IS INDICATED

<u>AGE</u>	<u>ALL RACES</u>		<u>WHITE</u>		<u>ALL OTHER</u>		<u>BLACK ONLY</u>	
	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>
0-4								
5-9								
10-14	44	41	35	29	9	12		
15-19	132	56	88	44	44	12		
20-24	181	118	123	76	58	42		
25-29	310	171	205	108	105	63		
30-34	566	228	416	154	150	74		
35-39	1062	407	771	244	291	163		
40-44	2273	870	1721	553	552	317		
45-49	4496	1632	3530	1073	966	559		
50-54								
55-59								
60-64								
65-69								
70-74								
75 up								
Not Stated	44	43	33	26	11	17		
TOTALS	9108	3566	6922	2307	2186	1259	0	0
SUM BY RACE	12674		9229		3445		0	

APPENDIX 12-E

DETAILED MORTALITY TABLES FOR 1976



Table 12-E-1
ALL DEATHS IN THE UNITED STATES, 1976
MALIGNANT NEOPLASM OF THE TRUNK
ICDA-8-REV. 171.1

AGE	ALL RACES		WHITE		ALL OTHER		BLACK ONLY	
	MALE	FEMALE	MALE	FEMALE	MALE	FEMALE	MALE	FEMALE
0-4	0	0	0	0	0	0		
5-9	0	2	0	2	0	0		
10-14	2	2	2	1	0	1		
15-19	4	3	4	3	0	0		
20-24	5	2	4	2	1	0		
25-29	0	5	0	5	0	0		
30-34	1	2	1	2	0	0		
35-39	4	2	2	2	2	0		
40-44	5	4	5	4	0	0		
45-49	5	3	4	3	1	0		
50-54	10	4	10	3	0	1		
55-59	11	16	10	13	1	3		
60-64	13	13	11	13	2	0		
65-69	9	13	9	12	0	1		
70-74	10	17	10	16	0	1		
75 up	26	31	24	29	2	2		
Not Stated	0	0	0	0	0	0		
TOTALS	105	119	96	110	9	9	0	0
SUM BY RACE	224		206		18		0	

Table 12-E-2
ALL DEATHS IN THE UNITED STATES, 1976
DISEASES OF THE MITRAL VALVE SPECIFIED AS RHEUMATIC
ICDA-8-REV. 394.0

<u>AGE</u>	<u>ALL RACES</u>		<u>WHITE</u>		<u>ALL OTHER</u>		<u>BLACK ONLY</u>	
	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>
0-4	0	0	0	0	0	0		
5-9	2	1	0	1	2	0		
10-14	2	0	1	0	1	0		
15-19	3	1	2	0	1	1		
20-24	4	9	4	6	0	3		
25-29	4	7	1	4	3	3		
30-34	8	13	5	10	3	3		
35-39	7	36	7	28	0	8		
40-44	22	45	18	38	4	7		
45-49	32	80	26	73	6	7		
50-54	58	97	53	88	5	9		
55-59	76	161	71	146	5	15		
60-64	90	194	87	185	3	9		
65-69	90	203	88	192	2	11		
70-74	61	171	61	165	0	6		
75 up	111	277	110	273	1	4		
Not Stated	0	0	0	0	0	0		
TOTALS	570	1295	534	1209	36	86	0	0
SUM BY RACE	1865		1743		122		0	

Table 12-E-3
ALL DEATHS IN THE UNITED STATES, 1976
DISEASES OF THE MITRAL VALVE NOT SPECIFIED AS RHEUMATIC
ICDA-8-REV. 394.9

<u>AGE</u>	<u>ALL RACES</u>		<u>WHITE</u>		<u>ALL OTHER</u>		<u>BLACK ONLY</u>	
	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>
0-4	4	1	3	1	1	0		
5-9	2	1	2	1	0	0		
10-14	2	7	2	5	0	2		
15-19	3	5	3	3	0	2		
20-24	1	7	1	4	0	3		
25-29	5	13	4	10	1	3		
30-34	11	14	6	12	5	2		
35-39	9	19	8	15	1	4		
40-44	15	34	10	27	5	7		
45-49	33	50	26	42	7	8		
50-54	62	78	55	69	7	9		
55-59	73	125	60	113	13	12		
60-64	115	156	110	146	5	10		
65-69	108	164	105	152	3	12		
70-74	87	122	82	114	5	8		
75 up	165	345	154	332	11	13		
Not Stated	0	0	0	0	0	0		
TOTALS	695	1141	631	1046	64	95	0	0
SUM BY RACE	1836		1677		159		0	

Table 12-E-4
ALL DEATHS IN THE UNITED STATES, 1976
DISEASES OF THE AORTIC VALVE SPECIFIED AS RHEUMATIC
ICDA-8-REV. 395.0

<u>AGE</u>	<u>ALL RACES</u>		<u>WHITE</u>		<u>ALL OTHER</u>		<u>BLACK ONLY</u>	
	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>
0-4	0	0	0	0	0	0		
5-9	1	0	1	0	0	0		
10-14	1	1	0	1	1	0		
15-19	1	1	0	0	1	1		
20-24	5	3	3	2	2	1		
25-29	6	0	5	0	1	0		
30-34	7	3	5	2	2	1		
35-39	10	8	10	5	0	3		
40-44	24	8	20	6	4	2		
45-49	24	8	19	7	5	1		
50-54	44	18	42	16	2	2		
55-59	34	27	34	25	0	2		
60-64	64	29	61	24	3	5		
65-69	48	45	44	43	4	2		
70-74	46	46	43	45	3	1		
75 up	65	90	59	82	6	8		
Not Stated	0	0	0	0	0	0		
TOTALS	380	287	346	258	34	29	0	0
SUM BY RACE	667		604		63		0	

Table 12-E-5
ALL DEATHS IN THE UNITED STATES, 1976
DISEASES OF THE AORTIC VALVE NOT SPECIFIED AS RHEUMATIC
ICDA-8-REV. 395.9

AGE	ALL RACES		WHITE		ALL OTHER		BLACK ONLY	
	MALE	FEMALE	MALE	FEMALE	MALE	FEMALE	MALE	FEMALE
0-4	5	0	4	0	1	0		
5-9	3	0	3	0	0	0		
10-14	5	5	5	4	0	1		
15-19	9	4	6	1	3	3		
20-24	17	6	16	5	1	1		
25-29	21	4	16	2	5	2		
30-34	23	7	21	5	2	2		
35-39	25	8	16	6	9	2		
40-44	50	13	42	10	8	3		
45-49	73	28	61	20	12	8		
50-54	140	33	123	29	17	4		
55-59	206	66	180	57	26	9		
60-64	303	107	273	91	30	16		
65-69	395	153	359	139	36	14		
70-74	362	215	339	192	23	23		
75 up	615	687	562	641	53	46		
Not Stated	0	0	0	0	0	0		
TOTALS	2252	1336	2026	1202	226	134	0	0
SUM BY RACE	3588		3228		360		0	

Table 12-E-6
ALL DEATHS IN THE UNITED STATES, 1976
DISEASES OF THE MITRAL AND AORTIC VALVES SPECIFIED AS RHEUMATIC
ICDA-8-REV. 396.0

<u>AGE</u>	<u>ALL RACES</u>		<u>WHITE</u>		<u>ALL OTHER</u>		<u>BLACK ONLY</u>	
	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>
0-4	0	0	0	0	0	0		
5-9	0	0	0	0	0	0		
10-14	1	0	0	0	1	0		
15-19	3	0	0	0	3	0		
20-24	3	2	2	1	1	1		
25-29	5	1	1	1	4	0		
30-34	4	5	3	3	1	2		
35-39	8	4	7	4	1	0		
40-44	10	14	7	12	3	2		
45-49	26	27	21	25	5	2		
50-54	47	34	41	28	6	6		
55-59	47	52	44	48	3	4		
60-64	38	49	38	46	0	3		
65-69	36	53	33	48	3	5		
70-74	32	52	31	52	1	0		
75 up	31	79	31	75	0	4		
Not Stated	0	0	0	0	0	0		
TOTALS	291	372	259	343	32	29	0	0
SUM BY RACE	663		602		61		0	

Table 12-E-7
ALL DEATHS IN THE UNITED STATES, 1976
DISEASES OF THE MITRAL AND AORTIC VALVES NOT SPECIFIED AS RHEUMATIC
ICDA-8-REV. 396.9

<u>AGE</u>	<u>ALL RACES</u>		<u>WHITE</u>		<u>ALL OTHER</u>		<u>BLACK ONLY</u>	
	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>
0-4	2	0	2	0	0	0		
5-9	0	0	0	0	0	0		
10-14	0	0	0	0	0	0		
15-19	1	0	0	0	1	0		
20-24	5	2	3	1	2	1		
25-29	3	3	2	3	1	0		
30-34	6	1	4	0	2	1		
35-39	7	3	6	3	1	0		
40-44	11	5	9	4	23	1		
45-49	9	11	8	9	1	2		
50-54	19	17	16	15	3	2		
55-59	23	24	21	22	2	2		
60-64	33	25	30	23	3	2		
65-69	33	30	32	29	1	1		
70-74	29	33	26	30	3	3		
75 up	38	84	38	80	0	4		
Not Stated	0	0	0	0	0	0		
TOTALS	219	238	197	219	22	19	0	0
SUM BY RACE	457		416		41		0	

Table 12-E-8
ALL DEATHS IN THE UNITED STATES, 1976
OTHER HEART DISEASES SPECIFIED AS RHEUMATIC
ICDA-8-REV. 398

<u>AGE</u>	<u>ALL RACES</u>		<u>WHITE</u>		<u>ALL OTHER</u>		<u>BLACK ONLY</u>	
	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>
0-4	0	0	0	0	0	0		
5-9	3	0	1	0	2	0		
10-14	0	1	0	0	0	1		
15-19	11	5	4	2	7	3		
20-24	9	8	4	3	5	5		
25-29	20	15	11	11	9	4		
30-34	23	17	17	12	6	5		
35-39	31	29	23	22	8	7		
40-44	42	49	32	34	10	15		
45-49	69	95	61	78	8	17		
50-54	112	126	105	113	7	13		
55-59	140	217	126	200	14	17		
60-64	167	297	155	284	12	13		
65-69	167	368	157	347	10	21		
70-74	156	339	147	331	9	8		
75 up	208	567	199	545	9	22		
Not Stated	0	0	0	0	0	0		
TOTALS	1158	2133	1042	1982	116	151	0	0
SUM BY RACE	3291		3024		267		0	

Table 12-E-9
ALL DEATHS IN THE UNITED STATES, 1976
CHRONIC ISCHEMIC HEART DISEASE
ICDA-8-REV. 412

AGE	ALL RACES		WHITE		ALL OTHER		BLACK ONLY	
	MALE	FEMALE	MALE	FEMALE	MALE	FEMALE	MALE	FEMALE
0-4	2	2	2	2	0	0		
5-9	2	0	2	0	0	0		
10-14	4	0	4	0	0	0		
15-19	12	3	7	3	5	0		
20-24	24	9	21	7	3	2		
25-29	95	30	68	19	27	11		
30-34	286	91	198	47	88	44		
35-39	661	199	461	124	200	75		
40-44	1612	465	1273	279	339	186		
45-49	3643	1066	2944	700	699	366		
50-54	6748	2192	5482	1467	1266	725		
55-59	9954	3723	8425	2779	1529	944		
60-64	14571	6517	12571	5154	2000	1363		
65-69	19145	10671	16729	8794	2416	1877		
70-74	22467	16893	20016	14503	2451	2390		
75 up	81119	120109	75149	112297	5970	7812		
Not Stated	30	37	20	25	10	12		
TOTALS	160375	162007	143372	146200	17003	15807	0	0
SUM BY RACE	322382		289572		32810		0	

Table 12-E-10
ALL DEATHS IN THE UNITED STATES, 1976
ACUTE MYOCARDITIS
ICDA-8-REV. 422

<u>AGE</u>	<u>ALL RACES</u>		<u>WHITE</u>		<u>ALL OTHER</u>		<u>BLACK ONLY</u>	
	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>
0-4	27	17	20	13	7	4		
5-9	2	4	1	3	1	1		
10-14	7	5	4	4	3	1		
15-19	12	8	10	3	2	5		
20-24	17	15	15	11	2	4		
25-29	15	11	15	10	0	1		
30-34	10	10	10	9	0	1		
35-39	11	13	8	9	3	4		
40-44	7	7	5	6	2	1		
45-49	12	6	8	5	4	1		
50-54	13	12	10	11	3	1		
55-59	18	5	16	4	2	1		
60-64	13	9	10	9	3	0		
65-69	12	7	10	5	2	2		
70-74	10	5	10	4	0	1		
75 up	16	27	14	25	2	2		
Not Stated	0	0	0	0	0	0		
TOTALS	202	161	166	131	36	30	0	0
SUM BY RACE	363		297		66		0	

Table 12-E-11
ALL DEATHS IN THE UNITED STATES, 1976
CHRONIC DISEASE OF ENDOCARDIUM (OF AORTIC VALVE, NONRHEUMATIC)
ICDA-8-REV. 424.1

<u>AGE</u>	<u>ALL RACES</u>		<u>WHITE</u>		<u>ALL OTHER</u>		<u>BLACK ONLY</u>	
	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>
0-4	0	0	0	0	0	0		
5-9	0	0	0	0	0	0		
10-14	0	0	0	0	0	0		
15-19	0	0	0	0	0	0		
20-24	0	0	0	0	0	0		
25-29	0	0	0	0	0	0		
30-34	1	0	0	0	1	0		
35-39	0	0	0	0	0	0		
40-44	0	0	0	0	0	0		
45-49	2	2	2	0	0	2		
50-54	3	0	2	0	1	0		
55-59	13	1	12	1	1	0		
60-64	10	4	10	4	0	0		
65-69	14	6	13	6	1	0		
70-74	16	7	14	7	2	0		
75 up	48	58	46	53	2	5		
Not Stated	0	0	0	0	0	0		
TOTALS	107	78	99	71	8	7	0	0
SUM BY RACE	185		170		15		0	

Table 12-E-12
ALL DEATHS IN THE UNITED STATES, 1976
CARDIOMYOPATHY
ICDA-8-REV. 425

<u>AGE</u>	<u>ALL RACES</u>		<u>WHITE</u>		<u>ALL OTHER</u>		<u>BLACK ONLY</u>	
	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>
0-4	33	21	23	15	10	6		
5-9	8	8	7	5	1	3		
10-14	22	13	16	12	6	1		
15-19	43	27	27	18	16	9		
20-24	58	23	37	15	21	8		
25-29	65	27	45	15	20	12		
30-34	82	33	53	23	29	10		
35-39	98	40	61	20	37	20		
40-44	131	63	77	39	54	24		
45-49	274	102	202	67	72	35		
50-54	328	170	259	119	69	51		
55-59	381	183	308	149	73	34		
60-64	374	172	298	138	76	34		
65-69	297	157	240	136	57	21		
70-74	190	120	167	97	23	23		
75 up	190	146	156	131	34	15		
Not Stated	0	0	0	0	0	0		
TOTALS	2574	1305	1976	999	598	306	0	0
SUM BY RACE	3879		2975		904		0	

Table 12-E-13
ALL DEATHS IN THE UNITED STATES, 1976
CONGESTIVE HEART FAILURE
ICDA-8-REV. 427.0

<u>AGE</u>	<u>ALL RACES</u>		<u>WHITE</u>		<u>ALL OTHER</u>		<u>BLACK ONLY</u>	
	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>
0-4	29	27	22	19	7	8		
5-9	1	1	1	1	0	0		
10-14	3	4	2	3	1	1		
15-19	5	5	4	1	1	4		
20-24	10	5	8	2	2	3		
25-29	19	9	10	6	9	3		
30-34	20	11	12	8	8	3		
35-39	27	24	17	16	10	8		
40-44	41	52	29	28	12	24		
45-49	114	97	84	63	30	34		
50-54	208	125	168	89	40	36		
55-59	356	231	276	169	80	62		
60-64	590	353	494	258	96	95		
65-69	877	600	741	457	136	143		
70-74	1070	913	911	750	159	163		
75 up	4214	6002	3830	5513	384	489		
Not Stated	2	1	0	1	2	0		
TOTALS	7586	8460	6609	7384	977	1076	0	0
SUM BY RACE	16046		13993		2053		0	

Table 12-E-14
ALL DEATHS IN THE UNITED STATES, 1976
LEFT VENTRICULAR FAILURE
ICDA-8-REV. 427.1

<u>AGE</u>	<u>ALL RACES</u>		<u>WHITE</u>		<u>ALL OTHER</u>		<u>BLACK ONLY</u>	
	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>
0-4	0	0	0	0	0	0		
5-9	0	0	0	0	0	0		
10-14	0	0	0	0	0	0		
15-19	2	0	2	0	0	0		
20-24	0	0	0	0	0	0		
25-29	2	0	2	0	0	0		
30-34	0	1	0	1	0	0		
35-39	4	2	3	2	1	0		
40-44	2	3	2	3	0	0		
45-49	2	2	1	0	1	2		
50-54	9	3	7	3	2	0		
55-59	15	4	13	3	2	1		
60-64	19	6	16	6	3	0		
65-69	19	10	16	8	3	2		
70-74	19	9	18	9	1	0		
75 up	78	75	68	69	10	6		
Not Stated	0	0	0	0	0	0		
TOTALS	171	115	148	104	23	11	0	0
SUM BY RACE	286		252		34		0	

Table 12-E-15
ALL DEATHS IN THE UNITED STATES, 1976
OTHER MYOCARDIAL INSUFFICIENCY
ICDA-8-REV. 428

AGE	ALL RACES		WHITE		ALL OTHER		BLACK ONLY	
	MALE	FEMALE	MALE	FEMALE	MALE	FEMALE	MALE	FEMALE
0-4	21	17	14	12	7	5		
5-9	4	7	4	6	0	1		
10-14	7	3	6	2	1	1		
15-19	20	7	17	5	3	2		
20-24	27	12	19	6	8	6		
25-29	25	17	18	9	7	8		
30-34	24	16	19	11	5	5		
35-39	23	13	12	11	11	2		
40-44	44	25	29	18	15	7		
45-49	57	34	45	25	12	9		
50-54	83	60	63	47	20	13		
55-59	87	57	76	50	11	7		
60-64	128	87	108	78	20	9		
65-69	146	86	128	74	18	12		
70-74	141	146	124	132	17	14		
75 up	636	984	562	918	74	66		
Not Stated	2	0	1	0	1	0		
TOTALS	1475	1571	1245	1404	230	167	0	0
SUM BY RACE	3046		2649		397		0	

Table 12-E-16
ALL DEATHS IN THE UNITED STATES, 1976
ILL-DEFINED HEART DISEASE (OTHER AND UNSPECIFIED)
ICDA-8-REV. 429.9

<u>AGE</u>	<u>ALL RACES</u>		<u>WHITE</u>		<u>ALL OTHER</u>		<u>BLACK ONLY</u>	
	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>
0-4	16	8	12	5	4	3		
5-9	2	0	2	0	0	0		
10-14	3	3	3	3	0	0		
15-19	6	6	4	2	2	4		
20-24	10	12	7	7	3	5		
25-29	16	10	9	4	7	6		
30-34	18	15	10	9	8	6		
35-39	56	11	35	6	21	5		
40-44	107	25	81	15	26	10		
45-49	225	53	185	35	40	18		
50-54	405	102	306	69	99	33		
55-59	554	165	460	104	94	61		
60-64	731	229	613	146	118	83		
65-69	790	313	639	241	151	72		
70-74	714	345	581	243	133	102		
75 up	1373	1334	1152	1090	221	244		
Not Stated	1	1	0	0	1	1		
TOTALS	5027	2632	4099	1979	928	653	0	0
SUM BY RACE	7659		6078		1581		0	

Table 12-E-17
ALL DEATHS IN THE UNITED STATES, 1976
SUMMARY OF ALL AGES AND ALL CONDITIONS
SELECTED CONDITIONS FOR WHICH HEART TRANSPLANTATION IS INDICATED

<u>AGE</u>	<u>ALL RACES</u>		<u>WHITE</u>		<u>ALL OTHER</u>		<u>BLACK ONLY</u>	
	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>
0-4	139	93	102	67	37	26		
5-9	30	24	24	19	6	5		
10-14	59	44	45	35	14	9		
15-19	135	75	90	41	45	34		
20-24	195	115	144	72	51	43		
25-29	301	152	207	99	94	53		
30-34	524	239	364	154	160	85		
35-39	981	411	676	273	305	138		
40-44	2123	812	1639	523	484	289		
45-49	4600	1664	3697	1152	903	512		
50-54	8289	3071	6742	2166	1547	905		
55-59	11988	5057	10132	3883	1856	1174		
60-64	17259	8247	14885	6605	2374	1642		
65-69	22186	12879	19343	10683	2843	2196		
70-74	25410	19433	22580	16690	2830	2743		
75 up	88933	130895	82154	122153	6779	8742		
Not Stated	35	39	21	26	14	13		
TOTALS	183187	183250	162845	164641	20342	18609	0	0
SUM BY RACE	366437		327486		38951		0	

Table 12-E-18
ALL DEATHS IN THE UNITED STATES, 1976
AGES 5-54 ONLY
SELECTED CONDITIONS FOR WHICH HEART TRANSPLANTATION IS INDICATED

<u>AGE</u>	<u>ALL RACES</u>		<u>WHITE</u>		<u>ALL OTHER</u>		<u>BLACK ONLY</u>	
	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>
0-4								
5-9	30	24	24	19	6	5		
10-14	59	44	45	35	14	9		
15-19	135	75	90	41	45	34		
20-24	195	115	144	72	51	43		
25-29	301	152	207	99	94	53		
30-34	524	239	364	154	160	85		
35-39	981	411	676	273	305	138		
40-44	2123	812	1639	523	484	289		
45-49	4600	1664	3697	1152	903	512		
50-54	8289	3071	6742	2166	1547	905		
55-59								
60-64								
65-69								
70-74								
75 up								
Not Stated	35	39	21	26	14	13		
TOTALS	17272	6646	13649	4560	3623	2086	0	0
SUM BY RACE	23918		18209		5709		0	

Table 12-E-19
ALL DEATHS IN THE UNITED STATES, 1976
AGES 10-54 ONLY
SELECTED CONDITIONS FOR WHICH HEART TRANSPLANTATION IS INDICATED

<u>AGE</u>	<u>ALL RACES</u>		<u>WHITE</u>		<u>ALL OTHER</u>		<u>BLACK ONLY</u>	
	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>
0-4								
5-9								
10-14	59	44	45	35	14	9		
15-19	135	75	90	41	45	34		
20-24	195	115	144	72	51	43		
25-29	301	152	207	99	94	53		
30-34	524	239	364	154	160	85		
35-39	981	411	676	273	305	138		
40-44	2123	812	1639	523	484	289		
45-49	4600	1664	3697	1152	903	512		
50-54	8289	3071	6742	2166	1547	905		
55-59								
60-64								
65-69								
70-74								
75 up								
Not Stated	35	39	21	26	14	13		
TOTALS	17242	6622	13625	4541	3617	2081	0	0
SUM BY RACE	23864		18166		5698		0	

Table 12-E-20
ALL DEATHS IN THE UNITED STATES, 1976
AGES 5-49 ONLY
SELECTED CONDITIONS FOR WHICH HEART TRANSPLANTATION IS INDICATED

<u>AGE</u>	<u>ALL RACES</u>		<u>WHITE</u>		<u>ALL OTHER</u>		<u>BLACK ONLY</u>	
	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>
0-4								
5-9	30	24	24	19	6	5		
10-14	59	44	45	35	14	9		
15-19	135	75	90	41	45	34		
20-24	195	115	144	72	51	43		
25-29	301	152	207	99	94	53		
30-34	524	239	364	154	160	85		
35-39	981	411	676	273	305	138		
40-44	2123	812	1639	523	484	289		
45-49	4600	1664	3697	1152	903	512		
50-54								
55-59								
60-64								
65-69								
70-74								
75 up								
Not Stated	35	39	21	26	14	13		
TOTALS	8983	3575	6907	2394	2076	1181	0	0
SUM BY RACE	12558		9301		3257		0	

Table 12-E-21
ALL DEATHS IN THE UNITED STATES, 1976
AGES 10-49 ONLY
SELECTED CONDITIONS FOR WHICH HEART TRANSPLANTATION IS INDICATED

<u>AGE</u>	<u>ALL RACES</u>		<u>WHITE</u>		<u>ALL OTHER</u>		<u>BLACK ONLY</u>	
	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>
0-4								
5-9								
10-14	59	44	45	35	14	9		
15-19	135	75	90	41	45	34		
20-24	195	115	144	72	51	43		
25-29	301	152	207	99	94	53		
30-34	524	239	364	154	160	85		
35-39	981	411	676	273	305	138		
40-44	2123	812	1639	523	484	289		
45-49	4600	1664	3697	1152	903	512		
50-54								
55-59								
60-64								
65-69								
70-74								
75 up								
Not Stated	35	39	21	26	14	13		
TOTALS	8953	3551	6883	2375	2070	1176	0	0
SUM BY RACE	12504		9258		3246		0	



CHAPTER 13

THE NEED FOR HEART TRANSPLANTATION AMONG
CURRENT MEDICARE BENEFICIARIES

Roger W. Evans, Ph.D.
Research Scientist
Health and Population Study Center
Battelle Human Affairs Research Centers
4000 N.E. 41st Street
Seattle, Washington 98105

A. INTRODUCTION

As part of the National Heart Transplantation Study, consideration must also be given to the implications of heart transplantation for the Medicare program. The study contract specifically requires that an estimate be made of the "approximate number of Medicare beneficiaries who would qualify for reimbursement, under existing entitlement rules, if heart transplants were a covered service." Once again, two approaches have been taken in providing such an estimate--a morbidity and mortality analysis. As qualified in earlier chapters, morbidity may be an overly sensitive measure of need, while mortality may be slightly stringent. Thus, it is expected that the most accurate estimate of need lies between that derived from morbidity data and that based on mortality data. In short, the need "funnel" analogy described in Chapter 11 applies equally well when estimates are being made of those people who are currently Medicare-eligible who might benefit from a heart transplant.

At the outset it should be recognized that the vast number of Medicare-eligible persons would not qualify for a heart transplant based on age alone. Age in excess of 49 years is considered a relative contraindication and age in excess of 54 years an absolute contraindication to heart transplantation. To qualify for Medicare benefits, a person must be 65 or over or have been declared disabled for a period of two years. In actuality, eligibility occurs after 30 months since the person believed to be disabled must also go through a six-month waiting period. Thus, only persons who become Medicare eligible due to disability are likely candidates for heart transplants in the event of end-stage cardiac disease.

Few data are available to assess the need for heart transplantation among Medicare beneficiaries. The only data suitable for this purpose are a part of the Medicare Data System (see Appendix 13-A). Data within this system on inpatient hospitalizations have been analyzed to derive the necessary need estimates. In deriving these estimates, data for the most recent five years have been analyzed. These years are 1975-1979. While estimates of morbidity in this chapter are always based on these five years, estimates of mortality rely on three years of data--1977 through 1979. Since the National Hospital Discharge Survey data, described in Chapter 11, are used to impute mortality estimates for Medicare beneficiaries, only those years of data where overlap occurred are used in this analysis.

While data from a single year are likely to be suitable for purposes of arriving at the required estimates of need, data from multiple years are used to determine the stability of the estimates. As noted in Chapters 11 and 12, there is one problem with using data from multiple years. The data presented in this chapter, as well as those presented in previous chapters, are based on two separate and inconsistent versions of the International Classification of Diseases--the 8th revision and the 9th revision. Consequently, estimates based on the 8th revision are not entirely consistent with those based on the 9th. The 9th revision, being more detailed than the 8th, generally produces need estimates that are lower than the 8th. Again, while some of the discrepancy between the 8th and 9th revisions may be due to a decline in cardiovascular disease, it is unlikely that it accounts for all of it.

This Chapter is logically divided into two parts. The first part consists of a morbidity analysis, and the second a mortality analysis. Like the two previous chapters, it contains a large number of tables. In the morbidity analysis, for every heart condition for each year, a separate age, sex, and race breakdown is provided. These tables, rather than being incorporated directly into the text of the Chapter, have been placed in separate appendixes at the end of the chapter (see Appendixes 13-B through 13-F). Such detailed tables are not provided, however, on patient mortality.

Throughout the Chapter summary tables have been incorporated into the text for both morbidity and mortality according to the same "need categories" used in Chapters 11 and 12. The summary tables have been compiled on a year-by-year basis. Several types of summary tables have been incorporated into the text, however: (1) hospital discharge data according to specific diagnoses and need categories, (2) total hospital discharges on the basis of age, sex, and race, ignoring specific disease diagnoses, and (3) total deaths on the basis of age, sex, and race, ignoring specific disease diagnoses. Overall, the intent in providing detailed tables has been to enable the user of the report to recalculate need estimates based on varying assumptions. Nonetheless, to minimize the extent to which this is required, the data are always presented according to five need categories.

In the remainder of this chapter the data and methods of analysis are described and the results presented. While the data used in these analyses have various limitations, they do provide reasonable estimates of the number of Medicare-eligible persons who may benefit from a heart transplant.

B. DATA AND METHODS

A general overview of the data used in these analyses is contained in a Health Care Financing Administration publication entitled "The Medicare Data System" included here as Appendix 13-A. Included in this publication is a description of the basic provisions of the Medicare law. Also, for these analyses, the National Hospital Discharge Survey data (described in Chapter 11) and the national mortality data (described in Chapter 12) have been used.

1. DATA

Goldstein (1981) has provided the following description of the Medicare Statistical System. Further information on the Medicare Statistical files can be obtained from the Office of Statistics and Data Management of the Health Care Financing Administration.

The primary objective of the Health Insurance Program's Medicare statistical system is to provide data required to measure and evaluate the operation and effectiveness of the two parts of the program. The benefit payment operations furnish the means of obtaining extensive, systematic, and continuous information about the amount and kind of hospital and medical care services used by Medicare beneficiaries, as well as the costs of such services. The applications submitted by hospitals, skilled nursing facilities (SNF) and home health agencies (HHA) to participate in the Medicare program provide data on the characteristics of such providers of service. The claim number that is assigned to each beneficiary serves as the link between the various services used under the program and the demographic characteristics of each individual recorded in the enrollment files.

The data-collection system has two inherent characteristics that greatly determine the scope, detail, and flexibility of the available data. First, data are collected and maintained on an individual basis so that the beneficiary and his medical experience under the program form the basic unit. Second, records for each bill paid are maintained on a centralized basis. Except for intermediary operating statistics such as those relating to workloads, time lags, costs, and the like, all program statistics are centrally prepared.

The statistical system is based on three record systems which are byproducts of the Health Insurance Administrative operations. These three systems are:

- . The Health Insurance Master Enrollment Record--This record identifies each person (aged and disabled) enrolled for Medicare. Data describing the characteristics of the Medicare enrolled population are obtained from this file. This file also serves as the basis for obtaining Medicare use rates. Approximately 27-1/2 million aged beneficiaries and 3 million disabled beneficiaries are currently entitled to Medicare benefits.
- . The Provider of Services Record--This file contains information on every hospital, skilled nursing facility, home health agency, independent laboratory and other institutional providers which must apply for participation in the program. Each is assigned a distinct provider number. Approximately 9,000 hospitals, 29,000 SNFs, 3,000 HHAs, 3,500 independent laboratories and 1,600 other types of facilities that participate in Medicare or Medicaid, or both, are on this file.
- . The Utilization Record--Part A and Part B billing information is maintained centrally, and these records are tabulated monthly, quarterly, and annually to measure the use of Medicare services. Currently, the annual volume of Medicare bills processed is as follows:

Inpatient hospital	11,000,000
SNF	1,000,000
Outpatient	25,000,000
HHA (A and B)	3,300,000
Payment Records (physicians and supplies)	126,000,000

Since each record contains both the beneficiary's claim number and the provider's number, these records can be readily matched to the Enrollment and Provider records. By this process we can create statistical records that contain all the available information needed for tabulation from the three files. (Note: The information in these files is confidential and used for administrative and statistical purposes only. The release of any information from these files is subject to the Privacy Act and other Federal Government rules and regulations.)

In addition to the one hundred percent utilization files described above, there are sample files for which diagnostic and surgery codes are obtained centrally at HCFA. These sample files are summarized in the following table:

Medicare Sample Sizes for Diagnosis
and Surgical Procedure Coding

<u>Type of Medicare Benefit</u>	<u>Billing Form</u>	<u>Sample Size</u>
Inpatient Hospital	HCFA-1453	20%
Skilled Nursing Facility (SNF)	HCFA-1453	100%
Medical & Other Health Services (Outpatient)	HCFA-1483	5%
Home Health Agency-- Part A and Part B	HCFA-1487	40%
Diagnostic Coding for Services thru 1970--ICDA-7		
Diagnostic Coding for Services 1971-1978--ICDA-8		
Diagnostic Coding for Services after 1978--ICD-9-CM		
Surgical Procedure Coding for years 1966-1978--CPT		
Surgical Procedure Coding for years after 1978--ICD-9-CM		
Volume 3		

The information coded on each type of bill is as follows:

Inpatient Hospital--Principal diagnosis and principal surgical procedure (if any).

Inpatient SNF--Admitting diagnosis.

Outpatient Hospital--Nature of illness and surgical procedure (if any).

Home Health Agency (A or B)--Diagnosis.

HCFA also codes an indication (yea, no) of whether additional diagnoses or surgical procedures are indicated on the bill.

Before 1977, most intermediaries submitted hard copy bills to SSA, and coding was done manually. By 1977, almost all intermediaries were submitting claims to HCFA on magnetic tape. It became impractical to continue receiving hard copy bills for the sample claims. Therefore, all intermediaries were instructed to key the narratives from sample bills and report the information to HCFA as part of the claims tape record. The first 45 characters of diagnostic information and the first 41 characters of surgical information are currently reported.

HCFA codes the narratives using a process known as the Automated Medical Coding System (AMCS). This system consists of computer programs which match the narratives from the bills to a "dictionary" of pre-coded narratives. Where there is a match, the code is applied to the record. Narratives that are not matched to the dictionary are sent to a staff of trained coders for manual coding. HCFA updates the dictionary periodically by adding new narrative terms based on usage.

Since the development of the Medicare Statistical System, there have been many changes in the ability of hospitals to provide coded medical

data, in the manner in which fiscal intermediaries collect and process claims data from providers, and in the uses made of the statistical data. Most hospitals code diagnoses and procedures using the clinical modification of the ninth revision of the International Classification of Diseases (ICD-9-CM). These codes are used, for example, on hospital discharge abstracts to generate disease and operational indices; for research purposes; for reporting to rate setting agencies; and for other applications specific to each provider. At the same time, the fiscal intermediaries are encouraging providers to submit machine readable claims data to them and, as previously noted, all fiscal intermediaries now submit paid claims data to HCFA on tape.

Institutional providers were permitted, with the intermediaries' concurrence, to report codes instead of narratives beginning in 1981. These codes were to be the full ICD-9-CM codes and the intermediary must transmit to HCFA the original codes reported. Otherwise, the intermediary must transmit the original narratives as reported by the provider to HCFA.

2. METHODS

As noted in Chapters 10, 11, and 12, there are many contraindications to heart transplantation. These contraindications are, once again, reproduced in Table 13-1. Unfortunately, in examining the data on Medicare beneficiaries it has also been impossible, as in previous need estimates, to take all of these contraindications into account. It would have been ideal, for example, to exclude persons from these analyses who had any of the contraindications listed in Table 13-1. Nonetheless, in these analyses only one contraindication--age--has been considered. Detailed age breakdowns have been produced to examine the implications of age as a

Table 13-1
Contraindications To Heart Transplantation As Specified By
the National Heart, Lung, and Blood Institute's
Special Advisory Group

- (1) Advancing age--e.g., beyond the age (normally about 50) at which the individual begins to have diminished capacity to withstand postoperative complications;
- (2) Severe pulmonary hypertension as reflected, for example, by a pulmonary artery systolic pressure over 65-70mm Hg and exceeding pulmonary artery wedge pressure by about 40 or more mm Hg, or a calculated pulmonary vascular resistance above approximately 6 Wood units (applicable to orthotopic cardiac transplantation because of the limited work capacity of a normal donor right ventricle);
- (3) Irreversible and severe hepatic or renal dysfunction (because of the likelihood of exacerbation early postoperatively and because of interference with immunosuppressive regimens);
- (4) Active systemic infection (because of the likelihood of exacerbation with initiation of immunosuppression);
- (5) Any other systemic disease considered likely to limit or preclude survival and rehabilitation after transplantation;
- (6) A history of behavior pattern or psychiatric illness likely to interfere significantly with compliance with a disciplined medical regimen (because a lifelong medical regimen is necessary, requiring multiple drugs several times a day with serious consequences in the event of their interruption or excessive consumption);
- (7) Recent and unresolved pulmonary infarction or pulmonary roentgenographic evidence of abnormalities of unclear etiology (because of the likelihood of pulmonary infection or its exacerbation with initiation of immunosuppression under such circumstances);
- (8) Insulin-requiring diabetes mellitus (because of exacerbation by chronic corticosteroid therapy);
- (9) Symptomatic or documented severe asymptomatic peripheral or cerebrovascular disease (because of observed accelerated progression in some patients after cardiac transplantation and on chronic corticosteroid treatment);

Table 13-1 (Continued)
 Contraindications To Heart Transplantation As Specified By
 the National Heart, Lung, and Blood Institute's
 Special Advisory Group

-
-
- (10) Acute peptic ulcer disease (because of the likelihood of early postoperative exacerbation);

 - (11) The absence of adequate external psychosocial supports for either short or long-term bases (because such support is generally necessary during the inevitable waxing and waning of the clinical status of the patient and for adherence to the lifelong medical regimen).
-

SOURCE: Federal Register Vol. 46, No. 14, Pgs. 7072-7074, Thursday, January 22, 1981.

contraindication. Only one indication for heart transplantation is considered--discharge diagnosis or (by imputation) likely diagnosis at death. If on the Medicare file for inpatient hospitalization a person had listed on their medical record any of the diagnoses for which heart transplantation may be indicated (see Tables 13-2 and 13-3) they were included in the analysis. If they had more than one of the diagnoses of interest, they were listed only once. In other words, the diagnosis at discharge or at death need not be principal in order for the person to be included in the analysis.

For these analyses several need categories have been defined, as previously done, taking into account discharge diagnosis or diagnosis at death. Defining several need categories allows a margin of flexibility in estimating the distribution of the conditions to which this analysis is directed. Also, there is some uncertainty at this time as to precisely what should be the age limits for cardiac transplantation. Thus, for purposes of compiling diagnosis-specific estimates of the total number of hospital discharges and deaths among Medicare beneficiaries in the U.S., five need categories have been used. They are:

- . all ages
- . ages 5-54
- . ages 10-54
- . ages 5-49
- . ages 10-49

Table 13-2
 Cardiac and Other Diseases and Conditions
 Potentially Requiring Heart Transplantation:
 Final List Based on ICDA-8-Rev Classification

<u>ICDA-8-REV CODE</u>	<u>DISEASE OR CONDITION</u>
171	<u>MALIGNANT NEOPLASM OF CONNECTIVE AND OTHER SOFT TISSUE</u>
171.1	Trunk
394	<u>DISEASES OF MITRAL VALVE</u>
394.0	Specified as rheumatic
394.9	Not specified as rheumatic
395	<u>DISEASES OF AORTIC VALVE</u>
395.0	Specified as rheumatic
395.9	Not specified as rheumatic
396	<u>DISEASES OF MITRAL AND AORTIC VALVES</u>
396.0	Specified as rheumatic
396.9	Not specified as rheumatic
398	<u>OTHER HEART DISEASE, SPECIFIED AS RHEUMATIC</u>
412	<u>CHRONIC ISCHEMIC HEART DISEASE</u>
412.0	With hypertensive disease
412.9	Without mention of hypertensive disease
422	<u>ACUTE MYOCARDITIS</u>

Table 13-2 (Continued)
 Cardiac and Other Diseases and Conditions
 Potentially Requiring Heart Transplantation:
 Final List Based on ICDA-8-Rev Classification

<u>ICDA-8-REV CODE</u>	<u>DISEASE OR CONDITION</u>
424	<u>CHRONIC DISEASE OF ENDOCARDIUM</u>
424.1	Of aortic valve, nonrheumatic
425	<u>CARDIOMYOPATHY</u>
427	<u>SYMPTOMATIC HEART DISEASE</u>
427.0	Congestive heart failure
427.1	Left ventricular failure
428	<u>OTHER MYOCARDIAL INSUFFICIENCY</u>
429	<u>ILL-DEFINED HEART DISEASE</u>
429.9	Other and unspecified heart diseases

List excludes all hypertensive and acute myocardial infarction.

This list compiled by Bernard J. Gersh, M.D., Division of Cardiovascular Disease and Internal Medicine, Mayo Clinic, Rochester, Minnesota. The list has been reviewed by Henry Bahnson, M.D. (University of Pittsburgh), Jack G. Copeland, M.D. (University of Arizona), Stuart Jamieson, M.D. (Stanford University Medical Center), and Robert Wallace, M.D. (Georgetown University).

REFERENCE: See Health Care Financing Administration, 1980.

Table 13-3
Cardiac and Other Diseases and Conditions
Potentially Requiring Heart Transplantation:
Final List Based on ICD-9-CM Classification

<u>ICD-9-CM CODE</u>	<u>DISEASE OR CONDITION</u>
164	<u>MALIGNANT NEOPLASM OF THYMUS, HEART, AND MEDIASTINUM</u>
164.1	Heart
394	<u>DISEASES OF THE MITRAL VALVE</u>
394.0	Mitral stenosis
394.1	Rheumatic mitral insufficiency
394.2	Mitral stenosis with insufficiency
394.9	Other and unspecified mitral valve diseases
395	<u>DISEASES OF THE AORTIC VALVE</u>
395.0	Rheumatic aortic stenosis
395.1	Rheumatic aortic insufficiency
395.2	Rheumatic aortic stenosis with insufficiency
395.9	Other unspecific rheumatic aortic diseases
396	<u>DISEASES OF MITRAL AND AORTIC VALVES</u>
396.0	Mitral valve stenosis and aortic valve stenosis
396.1	Mitral valve stenosis and aortic valve insufficiency
396.2	Mitral valve insufficiency and aortic valve stenosis
396.3	Mitral valve insufficiency and aortic valve insufficiency
398	<u>OTHER RHEUMATIC HEART DISEASE</u>
398.0	Rheumatic myocarditis
398.9	Other and unspecified rheumatic heart disease
398.90	Rheumatic heart disease, unspecified
398.91	Rheumatic heart failure (congestive)
398.99	Other
396.8	Multiple involvement of mitral and aortic valves
396.9	Mitral and aortic valve diseases unspecified

Table 13-3 (Continued)
 Cardiac and Other Diseases and Conditions
 Potentially Requiring Heart Transplantation:
 Final List Based on ICD-9-CM Classification

<u>ICD-9-CM CODE</u>	<u>DISEASE OR CONDITION</u>
414	<u>OTHER FORMS OF CHRONIC ISCHEMIC HEART DISEASE</u>
414.0	Coronary atherosclerosis
414.1	Aneurysm of heart
414.8	Other specified forms of chronic ischemic heart disease
424	<u>OTHER DISEASES OF ENDOCARDIUM</u>
424.1	Aortic valve disorders
425	<u>CARDIOMYOPATHY</u>
425.0	Endomyocardial fibrosis
425.4	Other primary cardiomyopathies
428	<u>HEART FAILURE</u>
428.0	Congestive heart failure
428.1	Left ventricular failure
428.9	Heart failure, unspecified
429	<u>ILL-DEFINED DESCRIPTIONS AND COMPLICATIONS OF HEART DISEASE</u>
429.0	Myocarditis, unspecified
429.1	Myocardial degeneration
429.3	Cardiomegaly

List excludes all hypertension and acute myocardial infarction.

This list compiled by Bernard J. Gersh, M.D., Division of Cardiovascular Disease and Internal Medicine, Mayo Clinic, Rochester, Minnesota. The list has been reviewed by Henry Bahnson, M.D. (University of Pittsburgh), Jack G. Copeland, M.D. (University of Arizona), Stuart Jamieson, M.D. (Stanford University Medical Center), and Robert Wallace, M.D. (Georgetown University).

Once again, more detailed diagnosis-specific estimates of hospital discharges for 1975-1979 are provided in Appendixes 13-B through 13-F.

C. RESULTS

1. MORBIDITY

Tables 13-4 through 13-8 contain a condition-by-condition breakdown according to various need categories of the number of Medicare beneficiaries discharged each year with conditions for which heart transplantation may eventually be indicated. The tables are presented beginning with 1979 and going back to 1975 (1979 was the most recent year for which the Medicare data were available at the time this chapter was written). Table 13-9, based on the 1978, 1977, 1976, and 1975 Medicare data, shows the number of hospital discharges according to the seven leading diagnoses for which heart transplantation may be indicated. Data from 1979 have been excluded from this table because the data for this year were coded according to the ICD-9-CM classification.

Considerable data are contained in Tables 13-4 through 13-8. To summarize the major findings, Table 13-10 has been prepared which shows the year-to-year estimates of the number of Medicare patient hospital discharges according to heart transplant need category. As shown here, despite the different disease classifications, there is less variability in the year-to-year estimates although the trend is far fewer discharges under the 9th revision of the International Classification of Diseases.

Table 13-4
 MEDICARE PATIENT MORBIDITY ANALYSIS
 CONDITIONS FOR WHICH HEART TRANSPLANTATION MAY BE INDICATED
 ALL MEDICARE HOSPITAL DISCHARGES, UNITED STATES, 1979

ICD-9-CM.	DIAGNOSIS	NEED CATEGORY ^a				
		ALL AGES	AGES 5-54	AGES 10-54	AGES 5-49	AGES 10-49
164	<u>Malignant neoplasm of thymus, heart, and mediastinum</u>					
164.1	Cardiac tumor	FNA ^a	FNA	FNA	FNA	FNA
394	<u>Diseases of mitral valve</u>					
394.0	Mitral stenosis	2,405	295	295	175	175
394.1	Rheumatic mitral insufficiency	185	5	5	5	5
394.2	Mitral stenosis with insufficiency	200	20	20	5	5
394.9	Other unspecified mitral valve diseases	2,740	295	295	110	110
395	<u>Diseases of Aortic Valve</u>					
395.0	Rheumatic aortic stenosis	55	0	0	0	0
395.1	Rheumatic aortic insufficiency	60	10	10	5	5
395.2	Rheumatic aortic stenosis with insufficiency	60	0	0	0	0
395.9	Other unspecified rheumatic aortic diseases	105	15	15	5	5

Table 13-4 (Continued)
 MEDICARE PATIENT MORBIDITY ANALYSIS
 CONDITIONS FOR WHICH HEART TRANSPLANTATION MAY BE INDICATED
 ALL MEDICARE HOSPITAL DISCHARGES, UNITED STATES, 1979

ICD-9.CM.	DIAGNOSIS	NEED CATEGORY ^a			
		ALL AGES	AGES 5-54	AGES 10-54	AGES 5-49 AGES 10-49
396	<u>Diseases of mitral and aortic valves</u>				
396.0	Mitral valve stenosis and aortic valve stenosis	165	10	10	5 5
396.1	Mitral valve stenosis and aortic valve insufficiency	235	10	10	10 10
396.2	Mitral valve insufficiency and aortic valve stenosis	260	0	0	0 0
396.3	Mitral valve insufficiency and aortic valve insufficiency	165	10	10	10 10
396.8	Multiple involvement of mitral and aortic valves	35	5	5	0 0
396.9	Mitral and aortic valve diseases, unspecified	170	15	15	10 10
398	<u>Other rheumatic heart disease</u>				
398.0	Rheumatic myocarditis	0	0	0	0 0
398.9	Other and unspecified rheumatic heart diseases	9,105	1,010	1,010	1,010 1,010

Table 13-4 (Continued)
 MEDICARE PATIENT MORBIDITY ANALYSIS
 CONDITIONS FOR WHICH HEART TRANSPLANTATION MAY BE INDICATED
 ALL MEDICARE HOSPITAL DISCHARGES, UNITED STATES, 1979

ICD-9-CM.	DIAGNOSIS	NEED CATEGORY ^a				
		ALL AGES	AGES 5-54	AGES 10-54	AGES 5-49	AGES 10-49
414	Other forms of chronic <u>ischemic heart disease</u>					
414.0	Coronary atherosclerosis	334,860	10,620	10,620	4,630	4,630
414.1	Aneurysm of heart	610	50	50	10	10
414.8	Other specified forms of chronic ischemic heart disease	7,995	420	420	180	180
424	Other Diseases of <u>Endocardium</u>					
424.1	Aortic valve disorders	14,200	400	395	225	220
425	<u>Cardiomyopathy</u>					
425.0	Endomyocardial fibrosis	35	0	0	0	0
425.4	Other primary cardiomyopathy	7,890	940	940	560	560
428	<u>Heart failure</u>					
428.0	Congestive heart failure	289,170	5,345	5,345	2,740	2,740
428.1	Left heart failure	7,835	160	160	55	55
428.9	Heart failure, unspecified	15,650	325	325	180	180

Table 13-4 (Continued)
 MEDICARE PATIENT MORBIDITY ANALYSIS
 CONDITIONS FOR WHICH HEART TRANSPLANTATION MAY BE INDICATED
 ALL MEDICARE HOSPITAL DISCHARGES, UNITED STATES, 1979

ICD-9-CM.	DIAGNOSIS	NEED CATEGORY ^a				
		ALL AGES	AGES 5-54	AGES 10-54	AGES 5-49	AGES 10-49
429	<u>Ill-defined descriptions and complications of heart disease</u>					
429.0	Myocarditis, unspecified	905	50	50	20	20
429.1	Myocardial degeneration	1,960	60	60	35	35
429.3	Cardiomegaly	4,800	175	175	110	110
	TOTALS	701,855	20,245	20,240	9,640	9,635

^aFNA - File not abstracted.

^bIncludes 398.9, 398.90, 398.91, and 398.99.

Table 13-5
 MEDICARE PATIENT MORBIDITY ANALYSIS
 CONDITIONS FOR WHICH HEART TRANSPLANTATION MAY BE INDICATED
 ALL MEDICARE HOSPITAL DISCHARGES, UNITED STATES, 1978

ICDA-8, REV.	DIAGNOSIS	NEED CATEGORY ^a			
		ALL AGES	AGES 5-54	AGES 10-54	AGES 5-49 10-49
171	<u>Malignant neoplasm of connective and other soft tissue</u>				
171.1	Trunk	FNA ^a	FNA	FNA	FNA
394	<u>Diseases of mitral valve</u>				
394.0	Specified as rheumatic	2,335	235	235	145
394.9	Not specified as rheumatic	7,400	680	680	385
395	<u>Diseases of aortic valve</u>				
395.0	Specified as rheumatic	610	70	70	35
395.9	Not specified as rheumatic	13,725	410	410	255
396	<u>Diseases of mitral and aortic valves</u>				
396.0	Specified as rheumatic	200	20	20	20
396.9	Not specified as rheumatic	0	0	0	0
398	Other heart disease, specified as rheumatic	7,320	845	845	445

Table 13-5 (Continued)
 MEDICARE PATIENT MORBIDITY ANALYSIS
 CONDITIONS FOR WHICH HEART TRANSPLANTATION MAY BE INDICATED
 ALL MEDICARE HOSPITAL DISCHARGES, UNITED STATES, 1978

ICDA-8.REV.	DIAGNOSIS	NEED CATEGORY ^a			
		ALL AGES	AGES 5-54	AGES 10-54	AGES 5-49 10-49
412	<u>Chronic ischemic heart disease</u>				
412.0	With hypertensive disease	58,810	1,730	1,730	835
412.9	Without hypertensive disease	538,515	17,580	17,580	7,980
422	<u>Acute myocarditis</u>	375	35	35	25
424	<u>Chronic disease of endocardium</u>				
424.1	Of aortic valve, nonrheumatic	235	0	0	0
425	<u>Cardiomyopathy</u>	7,100	1,000	1,000	1,000
427	<u>Symptomatic heart disease</u>				
427.0	Congestive heart failure	216,360	4,565	4,565	2,270
427.1	Left ventricular failure	4,550	120	120	50
428	<u>Other myocardial insufficiency</u>	5,615	205	205	80
429	<u>Ill-defined heart diseases</u>				
429.9	Other and unspecified heart diseases	31,010	1,090	1,090	640
	TOTALS	894,160	28,585	28,585	13,765

^aFNA = File not abstracted.

Table 13-6
 MEDICARE PATIENT MORBIDITY ANALYSIS
 CONDITIONS FOR WHICH HEART TRANSPLANTATION MAY BE INDICATED
 ALL MEDICARE HOSPITAL DISCHARGES, UNITED STATES, 1977

ICDA-8.REV.	DIAGNOSIS	NEED CATEGORY ^a				
		ALL AGES	AGES 5-54	AGES 10-54	AGES 5-49	AGES 10-49
171	<u>Malignant neoplasm of connective and other soft tissue</u>					
171.1	Trunk	FNA ^a	FNA	FNA	FNA	FNA
394	<u>Diseases of mitral valve</u>					
394.0	Specified as rheumatic	3,230	325	325	170	170
394.9	Not specified as rheumatic	7,855	635	635	435	435
395	<u>Diseases of aortic valve</u>					
395.0	Specified as rheumatic	955	80	80	70	70
395.9	Not specified as rheumatic	12,425	550	550	355	355
396	<u>Diseases of mitral and aortic valves</u>					
396.0	Specified as rheumatic	570	90	90	70	70
396.9	Not specified as rheumatic	0	0	0	0	0
398	Other heart disease, specified as rheumatic	6,885	780	780	470	470

Table 13-6 (Continued)
 MEDICARE PATIENT MORBIDITY ANALYSIS
 CONDITIONS FOR WHICH HEART TRANSPLANTATION MAY BE INDICATED
 ALL MEDICARE HOSPITAL DISCHARGES, UNITED STATES, 1977

ICDA-8.REV.	DIAGNOSIS	NEED CATEGORY ^a				
		ALL AGES	AGES 5-54	AGES 10-54	AGES 5-49	AGES 10-49
412	<u>Chronic ischemic heart disease</u>					
412.0	With hypertensive disease	96,935	2,450	2,450	1,045	1,045
412.9	Without hypertensive disease	587,635	17,520	17,520	7,835	7,835
422	<u>Acute myocarditis</u>	255	10	10	10	10
424	<u>Chronic disease of endocardium</u>					
424.1	Of aortic valve, nonrheumatic	85	0	0	0	0
425	<u>Cardiomyopathy</u>	5,460	885	885	885	885
427	<u>Symptomatic heart disease</u>					
427.0	Congestive heart failure	177,270	3,945	3,945	2,045	2,045
427.1	Left ventricular failure	2,690	70	70	15	15
428	<u>Other myocardial insufficiency</u>	5,635	155	155	100	100
429	<u>Ill-defined heart diseases</u>					
429.9	Other and unspecified heart diseases	29,475	930	930	510	510
	TOTALS	937,360	28,425	28,425	13,685	13,685

^aFNA = File not abstracted.

Table 13-7
 MEDICARE PATIENT MORBIDITY ANALYSIS
 CONDITIONS FOR WHICH HEART TRANSPLANTATION MAY BE INDICATED
 ALL MEDICARE HOSPITAL DISCHARGES, UNITED STATES, 1976

ICDA-8.REV.	DIAGNOSIS	NEED CATEGORY ^a			
		ALL AGES	AGES 5-54	AGES 10-54	AGES 5-49 10-49
171	<u>Malignant neoplasm of connective and other soft tissue</u>				
171.1	Trunk	FNA ^a	FNA	FNA	FNA
394	<u>Diseases of mitral valve</u>				
394.0	Specified as rheumatic	3,835	360	360	215
394.9	Not specified as rheumatic	7,865	585	585	385
395	<u>Diseases of aortic valve</u>				
395.0	Specified as rheumatic	930	70	70	35
395.9	Not specified as rheumatic	11,140	390	390	230
396	<u>Diseases of mitral and aortic valves</u>				
396.0	Specified as rheumatic	1,040	160	160	120
396.9	Not specified as rheumatic	0	0	0	0
398	Other heart disease, specified as rheumatic	6425	745	745	415

Table 13-7 (Continued)
 MEDICARE PATIENT MORBIDITY ANALYSIS
 CONDITIONS FOR WHICH HEART TRANSPLANTATION MAY BE INDICATED
 ALL MEDICARE HOSPITAL DISCHARGES, UNITED STATES, 1976

ICDA-8, REV.	DIAGNOSIS	NEED CATEGORY ^a				
		ALL AGES	AGES 5-54	AGES 10-54	AGES 5-49	AGES 10-49
412	<u>Chronic ischemic heart disease</u>					
412.0	With hypertensive disease	130,430	3,140	3,140	1,270	1,270
412.9	Without hypertensive disease	598,065	16,470	16,470	7,300	7,300
422	<u>Acute myocarditis</u>	165	20	20	20	20
424	<u>Chronic disease of endocardium</u>					
424.1	Of aortic valve, nonrheumatic	130	0	0	0	0
425	<u>Cardiomyopathy</u>	3,955	570	570	570	570
427	<u>Symptomatic heart disease</u>					
427.0	Congestive heart failure	146,585	2,840	2,835	1,580	1,575
427.1	Left ventricular failure	2,025	70	70	15	15
428	<u>Other myocardial insufficiency</u>	5,865	245	245	115	115
429	<u>Ill-defined heart diseases</u>					
429.9	Other and unspecified heart diseases	19,785	655	655	365	365
	TOTALS	938,240	26,320	26,315	12,430	12,425

^aFNA = File not abstracted.

Table 13-8

MEDICARE PATIENT MORBIDITY ANALYSIS
CONDITIONS FOR WHICH HEART TRANSPLANTATION MAY BE INDICATED
ALL MEDICARE HOSPITAL DISCHARGES, UNITED STATES, 1975

ICDA-8. REV.	DIAGNOSIS	NEED CATEGORY ^a				
		ALL AGES	AGES 5-54	AGES 10-54	AGES 5-49	AGES 10-49
171	<u>Malignant neoplasm of connective and other soft tissue</u>					
171.1	Trunk	FNA ^a	FNA	FNA	FNA	FNA
394	<u>Diseases of mitral valve</u>					
394.0	Specified as rheumatic	3,930	395	395	245	245
394.9	Not specified as rheumatic	7,520	520	520	290	290
395	<u>Diseases of aortic valve</u>					
395.0	Specified as rheumatic	995	80	80	45	45
395.9	Not specified as rheumatic	9,090	355	355	190	190
396	<u>Diseases of mitral and aortic valves</u>					
396.0	Specified as rheumatic	1,100	90	90	65	65
396.9	Not specified as rheumatic	0	0	0	0	0
398	Other heart disease, specified as rheumatic	6,010	700	700	385	385

Table 13-8 (Continued)
 MEDICARE PATIENT MORBIDITY ANALYSIS
 CONDITIONS FOR WHICH HEART TRANSPLANTATION MAY BE INDICATED
 ALL MEDICARE HOSPITAL DISCHARGES, UNITED STATES, 1975

ICDA-8.REV.	DIAGNOSIS	NEED CATEGORY ^a				
		ALL AGES	AGES 5-54	AGES 10-54	AGES 5-49	AGES 10-49
412	<u>Chronic ischemic heart disease</u>					
412.0	With hypertensive disease	119,225	2,805	2,805	1,185	1,185
412.9	Without hypertensive disease	535,455	14,275	14,270	6,530	6,525
422	<u>Acute myocarditis</u>	260	10	10	10	10
424	<u>Chronic disease of endocardium</u>					
424.1	Of aortic valve, nonrheumatic	210	0	0	0	0
425	<u>Cardiomyopathy</u>	3,030	580	580	580	580
427	<u>Symptomatic heart disease</u>					
427.0	Congestive heart failure	119,100	2,410	2,410	1,260	1,260
427.1	Left ventricular failure	1,945	60	60	25	25
428	<u>Other myocardial insufficiency</u>	6,050	200	200	120	120
429	<u>Ill-defined heart diseases</u>					
429.9	Other and unspecified heart diseases	14,775	440	440	230	230
	TOTALS	828,695	22,920	22,915	10,965	10,960

^aFNA = File not abstracted.

Table 13-9
 Number of Medicare Patient Hospital Discharges Per Year
 Based On Primary Indications For Heart Transplantation,
 Ages 10-54 Only

<u>DISCHARGE DIAGNOSIS</u>	<u>YEAR</u>			
	<u>1978</u>	<u>1977</u>	<u>1976</u>	<u>1975</u>
	(NUMBER OF DISCHARGES)			
Chronic ischemic heart disease, without hypertensive disease	17,580	17,520	16,470	14,270
Congestive heart failure	4,565	3,945	3,140	2,410
Chronic ischemic heart disease, with hypertensive disease	1,730	2,450	2,835	2,805
Other and unspecified heart diseases	1,090	930	655	440
Cardiomyopathy	1,000	885	570	580
Diseases of mitral valve, not specified as rheumatic	680	635	585	520
Other heart disease, specified as rheumatic	845	780	745	700

Table 13-10
 Year-to-Year Estimates of the Number of Hospital Discharges
 For Medicare-Eligible Persons With Conditions For Whom
 Heart Transplantation May Be Indicated,
 According to Need Category

<u>YEAR</u>	<u>NEED CATEGORY</u>				
	<u>ALL AGES</u>	<u>AGES 5-54</u>	<u>AGES 10-54</u>	<u>AGES 5-49</u>	<u>AGES 10-49</u>
1979 ^a	701,855	20,245	20,240	9,640	9,635
1978 ^b	894,160	28,585	28,585	13,765	13,765
1977 ^b	937,360	28,425	28,425	13,685	13,685
1976 ^b	938,240	26,320	26,315	12,430	12,425
1975 ^b	828,695	22,920	22,915	10,965	10,960

^aBased on International Classification of Diseases, 9th Revision.

^bBased on International Classification of Diseases, 8th Revision.

Thus, based on Medicare hospital discharge data for 1975 through 1979 (even with varying classification systems) it is estimated that between 702,000 and 939,000 Medicare beneficiaries were hospitalized with conditions for which heart transplantation may be indicated. Again, just having a particular condition is not an indication of the need for a heart transplant. Mortality analyses presented below are more appropriate for making such a determination.

Table 13-10 reveals how the age criterion dramatically effects the need estimates. For example, in the need category "ages 10-54" the number of Medicare beneficiaries discharged from hospitals with the appropriate conditions is between 20,000 and 29,000.

Detailed age, sex, and race hospital discharge tables for 1979, 1978, 1977, 1976, and 1975 are provided in Appendixes 13-B through 13-F at the end of the chapter. Included with these tables are several summary tables that show gross estimates of the number of hospital discharges by need category for each year, not specific according to diagnosis at discharge. There is one summary table for each of the following need categories: all ages, ages 5-54, ages 10-54, ages 5-49, and ages 10-49. Unlike tables in previous chapters, there is no year-to-year variation in the race specificity of these data.

To summarize the data contained in Appendixes 13-B through 13-F, several summary tables follow that show the race and sex breakdowns by year for each of the need categories. In reviewing these tables it is particularly important to direct attention to the title of each table which indicates what need category the data refer to. These can be highlighted as follows:

<u>TABLE</u>	<u>NEED CATEGORY</u>
13-11	All ages
13-12	Ages 5-54
13-13	Ages 10-54
13-14	Ages 5-49
13-15	Ages 10-49

Of these tables, Table 13-13 contains the data pertaining to the need category appropriate to the current patient selection criteria.

Once again, Tables 13-11 through 13-15 reveal the dramatic affect of age on hospital admissions. For example, in 1979, nearly 702,000 Medicare beneficiaries were admitted to hospitals with a diagnosis appropriate for heart transplantation. However, when the age category of interest is 10-54 the number of discharges drops to about 20,000. If age is further restricted to ages 10-49, only 9,600 discharges occurred.

Based on Table 13-13, the need category for which heart transplantation is appropriate, it can be concluded that in 1979 the distribution of Medicare beneficiaries according to race and sex, regardless of discharge diagnosis, would be as follows:

12,420	White males
4,480	White females
325	Other only males (excluding blacks)
90	Other only females (excluding blacks)
1,725	Black males
1,200	Black females

Table 13-11
Race and Sex Breakdown for "ALL AGES" Need Category
(Medicare Patient Hospital Discharges)

RACE/SEX	<u>YEAR</u>				
	<u>1979</u>	<u>1978</u>	<u>1977</u>	<u>1976</u>	<u>1975</u>
ALL RACES	701,855	894,160	937,360	938,240	828,695
Male	329,125	434,000	449,495	446,940	394,540
Female	372,730	460,160	487,865	491,300	434,155
WHITE ONLY	627,895	799,460	840,515	844,580	745,135
Male	295,715	389,920	405,060	404,950	356,710
Female	332,180	409,540	435,455	439,630	388,425
OTHER ONLY ^a	22,060	27,110	28,010	27,255	25,440
Male	10,505	12,720	13,150	12,145	10,990
Female	11,555	14,390	14,860	15,110	14,450
BLACK ONLY	51,900	67,590	68,835	66,405	58,120
Male	22,940	31,360	31,285	29,845	26,840
Female	28,960	36,230	37,550	36,560	31,280
ALL OTHER ^b	73,960	94,700	96,845	93,660	83,560
Male	33,410	44,080	44,435	41,990	37,830
Female	40,550	50,620	52,410	51,670	45,730

^aExcludes blacks.

^bIncludes blacks and all others.

Table 13-12
Race and Sex Breakdown for "AGES 5-54" Need Category
(Medicare Patient Hospital Discharges)

<u>RACE/SEX</u>	<u>YEAR</u>				
	<u>1979</u>	<u>1978</u>	<u>1977</u>	<u>1976</u>	<u>1975</u>
ALL RACES	20,245	28,585	28,425	26,320	22,920
Male	14,480	20,820	20,915	19,465	16,945
Female	5,765	7,765	7,510	6,855	5,975
WHITE ONLY	16,905	24,040	24,300	22,845	19,870
Male	12,420	17,860	18,270	17,240	14,945
Female	4,485	6,180	6,030	5,605	4,925
OTHER ONLY ^a	415	500	485	320	380
Male	325	400	390	275	300
Female	90	100	95	45	80
BLACK ONLY	2,925	4,045	3,640	3,155	2,670
Male	1,725	2,560	2,255	1,950	1,700
Female	1,200	1,485	1,385	1,205	970
ALL OTHER ^b	3,340	4,545	4,125	3,475	3,050
Male	2,060	2,960	2,645	2,225	2,000
Female	1,280	1,585	1,480	1,250	1,050

^aExcludes blacks.

^bIncludes blacks and all others.

Table 13-13
 Race and Sex Breakdown for "AGES 10-54" Need Category
 (Medicare Patient Hospital Discharges)

RACE/SEX	<u>YEAR</u>				
	<u>1979</u>	<u>1978</u>	<u>1977</u>	<u>1976</u>	<u>1975</u>
ALL RACES	20,240	28,585	28,425	26,315	22,915
Male	14,480	20,820	20,915	19,460	16,940
Female	5,760	7,765	7,510	6,855	5,975
WHITE ONLY	16,900	24,040	24,300	22,840	19,865
Male	12,420	17,860	18,270	17,235	14,940
Female	4,480	6,180	6,030	5,605	4,925
OTHER ONLY ^a	415	500	485	320	380
Male	325	400	390	275	300
Female	90	100	95	45	80
BLACK ONLY	2,925	4,045	3,640	3,155	2,670
Male	1,725	2,560	2,255	1,950	1,700
Female	1,200	1,485	1,385	1,205	970
ALL OTHER ^b	3,340	4,545	4,125	3,475	3,050
Male	2,060	2,960	2,645	2,225	2,000
Female	1,280	1,585	1,480	1,250	1,050

^aExcludes blacks.

^bIncludes blacks and all others.

Table 13-14
Race and Sex Breakdown for "AGES 5-49" Need Category
(Medicare Patient Hospital Discharges)

<u>RACE/SEX</u>	<u>YEAR</u>				
	<u>1979</u>	<u>1978</u>	<u>1977</u>	<u>1976</u>	<u>1975</u>
ALL RACES	9,640	13,765	13,685	12,430	10,965
Male	6,955	10,235	10,315	9,430	8,310
Female	2,685	3,530	3,370	3,000	2,655
WHITE ONLY	7,870	11,310	11,410	10,595	9,395
Male	5,875	8,610	8,785	8,190	7,255
Female	1,995	2,700	2,625	2,405	2,140
OTHER ONLY ^a	180	250	250	145	165
Male	155	190	205	120	120
Female	25	60	45	25	45
BLACK ONLY	1,590	2,205	2,025	1,690	1,405
Male	925	1,435	1,325	1,120	935
Female	665	770	700	570	470
ALL OTHER ^b	1,770	2,455	2,275	1,835	1,570
Male	1,080	1,625	1,530	1,240	1,055
Female	690	830	745	595	515

^aExcludes blacks.

^bIncludes blacks and all others.

Table 13-15
Race and Sex Breakdown for "AGES 10-49" Need Category
(Medicare Patient Hospital Discharges)

RACE/SEX	<u>YEAR</u>				
	<u>1979</u>	<u>1978</u>	<u>1977</u>	<u>1976</u>	<u>1975</u>
ALL RACES	9,635	13,765	13,685	12,425	10,960
Male	6,955	10,235	10,315	9,425	8,305
Female	2,680	3,530	3,370	3,000	2,655
WHITE ONLY	7,865	11,310	11,410	10,590	9,390
Male	5,875	8,610	8,785	8,185	7,250
Female	1,990	2,700	2,625	2,405	2,140
OTHER ONLY ^a	180	250	250	145	165
Male	155	190	205	120	120
Female	25	60	45	25	45
BLACK ONLY	1,590	2,205	2,025	1,690	1,405
Male	925	1,435	1,325	1,120	935
Female	665	770	700	570	470
ALL OTHER ^b	1,770	2,455	2,275	1,835	1,570
Male	1,080	1,625	1,530	1,240	1,055
Female	690	830	745	595	515

^aExcludes blacks.

^bIncludes blacks and all others.

More detailed data on the age, sex, and race breakdown of all Medicare beneficiaries between the ages of 10 and 54 who were admitted to hospitals in 1979, 1978, 1977, 1976, and 1975 are presented in Tables 13-16 through 13-20, respectively. These tables differ from Tables 13-4 through 13-8 in that they also contain detailed age data. Such detailed data for all heart conditions are provided in Appendixes 13-I through 13-F.

2. MORTALITY

Unlike the two preceding chapters, this chapter consists of a combined morbidity and mortality analysis of Medicare beneficiaries. As noted in the introduction of the chapter, however, detailed data on the mortality of Medicare beneficiaries are largely unavailable. It has therefore, been necessary to use data from the National Hospital Discharge Survey as well as national mortality data to impute the number of deaths among Medicare beneficiaries. This has been made possible by computing a ratio of deaths to hospital discharges then using a percentage similarly calculated to estimate how many Medicare beneficiaries are likely to die of heart conditions for which transplantation may be indicated.

Table 13-21 contains the raw data (all races and both sexes) required for calculating the required ratios and percentages. Three base-years--1979, 1978, 1977--are used for these calculations. As shown, Table 13-21 contains both morbidity and mortality data. Table 13-22 shows the resulting ratios and percentages for each of these years of interest. Clearly the ratios and percentages vary according to need category, particularly the "all ages" category and the remainder of the need categories.

Table 13-16
 ALL MEDICARE PERSONS DISCHARGED FROM HOSPITALS IN U.S., 1979
 AGES 10-54 ONLY
 SELECTED CONDITIONS FOR WHICH HEART TRANSPLANTATION IS INDICATED

<u>AGE</u>	<u>ALL RACES</u>		<u>WHITE</u>		<u>OTHER ONLY</u>		<u>BLACK ONLY</u>	
	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>
0-4								
5-9								
10-14	10	0	0	0	0	0	10	0
15-19	10	10	10	0	0	0	0	10
20-24	120	60	90	50	0	0	30	10
25-29	145	65	110	40	0	5	35	20
30-34	300	185	230	150	15	10	55	25
35-39	875	340	690	290	20	0	165	50
40-44	1720	695	1435	510	65	5	220	180
45-49	3775	1325	3310	950	55	5	410	370
50-54	7525	3080	6545	2490	170	65	800	535
55-59								
60-64								
65-69								
70-74								
75 up								
Not Stated	0	0	0	0	0	0	0	0
TOTALS	14480	5760	12420	4480	325	90	1725	1200
SUM BY RACE	20240		16900		415		2925	

Table 13-17
 ALL MEDICARE PERSONS DISCHARGED FROM HOSPITALS IN U.S., 1978
 AGES 10-54 ONLY
 SELECTED CONDITIONS FOR WHICH HEART TRANSPLANTATION IS INDICATED

<u>AGE</u>	<u>ALL RACES</u>		<u>WHITE</u>		<u>OTHER ONLY</u>		<u>BLACK ONLY</u>	
	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>
0-4								
5-9								
10-14	5	5	5	5	0	0	0	0
15-19	0	5	0	5	0	0	0	0
20-24	140	150	65	100	5	10	70	40
25-29	225	130	175	105	10	0	40	25
30-34	565	155	370	125	0	5	195	25
35-39	1175	295	940	225	0	10	235	60
40-44	2705	930	2360	685	55	10	290	235
45-49	5420	1860	4695	1450	120	25	605	385
50-54	10585	4235	9250	3480	210	40	1125	715
55-59								
60-64								
65-69								
70-74								
75 up								
Not Stated	0	0	0	0	0	0	0	0
TOTALS	20820	7765	17860	6180	400	100	2560	1485
SUM BY RACE	28585		24040		500		4045	

Table 13-18
 ALL MEDICARE PERSONS DISCHARGED FROM HOSPITALS IN U.S., 1977
 AGES 10-54 ONLY
 SELECTED CONDITIONS FOR WHICH HEART TRANSPLANTATION IS INDICATED

<u>AGE</u>	<u>ALL RACES</u>		<u>WHITE</u>		<u>OTHER ONLY</u>		<u>BLACK ONLY</u>	
	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>
0-4								
5-9								
10-14	5	0	5	0	0	0	0	0
15-19	25	10	15	10	0	0	10	0
20-24	95	120	65	95	5	10	25	15
25-29	240	155	170	110	10	5	60	40
30-34	430	180	345	155	15	0	70	25
35-39	1200	335	920	280	25	0	255	55
40-44	2590	920	2210	670	60	15	320	235
45-49	5730	1650	5055	1305	90	15	585	330
50-54	10600	4140	9485	3405	185	50	930	685
55-59								
60-64								
65-69								
70-74								
75 up								
Not Stated	0	0	0	0	0	0	0	0
TOTALS	20915	7510	18270	6030	390	95	2255	1385
SUM BY RACE	28425		24300		485		3640	

Table 13-19
ALL MEDICARE PERSONS DISCHARGED FROM HOSPITALS IN U.S., 1976
AGES 10-54 ONLY
SELECTED CONDITIONS FOR WHICH HEART TRANSPLANTATION IS INDICATED

<u>AGE</u>	<u>ALL RACES</u>		<u>WHITE</u>		<u>OTHER ONLY</u>		<u>BLACK ONLY</u>	
	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>
0-4								
5-9								
10-14	5	0	5	0	0	0	0	0
15-19	10	5	10	0	0	5	0	0
20-24	95	50	80	25	0	5	15	20
25-29	135	65	95	40	0	10	40	15
30-34	390	130	320	85	0	0	70	45
35-39	925	305	705	240	10	0	210	65
40-44	2415	705	2145	565	45	5	225	135
45-49	5450	1740	4825	1450	65	0	560	290
50-54	10035	3855	9050	3200	155	20	830	635
55-59								
60-64								
65-69								
70-74								
75 up								
Not Stated	0	0	0	0	0	0	0	0
TOTALS	19460	6855	17235	5605	275	45	1950	1205
SUM BY RACE	26315		22840		320		3155	

Table 13-20
 ALL MEDICARE PERSONS DISCHARGED FROM HOSPITALS IN U.S., 1975
 AGES 10-54 ONLY
 SELECTED CONDITIONS FOR WHICH HEART TRANSPLANTATION IS INDICATED

<u>AGE</u>	<u>ALL RACES</u>		<u>WHITE</u>		<u>OTHER ONLY</u>		<u>BLACK ONLY</u>	
	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>
0-4								
5-9								
10-14	0	5	0	5	0	0	0	0
15-19	25	15	10	15	10	0	5	0
20-24	60	70	45	50	0	0	15	20
25-29	80	60	55	30	0	5	25	25
30-34	290	120	225	105	10	0	55	15
35-39	935	275	740	215	20	5	175	55
40-44	2225	525	1935	395	35	20	255	110
45-49	4690	1585	4240	1325	45	15	405	245
50-54	8635	3320	7690	2785	180	35	765	500
55-59								
60-64								
65-69								
70-74								
75 up								
Not Stated	0	0	0	0	0	0	0	0
TOTALS	16940	5975	14940	4925	300	80	1700	970
SUM BY RACE	22915		19865		380		2670	

Table 13-21
Raw Data Required For Calculating Ratios and Percentages Needed
to Compute Deaths Among Medicare-Eligible Patients

<u>NEED INDICATOR</u>	<u>YEAR</u>		
	<u>1979</u>	<u>1978</u>	<u>1977</u>
<u>MORTALITY</u> ^a			
All Ages	258,116	382,437	371,954
Ages 5-54	14,066	24,146	24,319
Ages 10-54	14,025	24,083	24,266
Ages 5-49	7,714	12,749	12,727
Ages 10-49	7,673	12,686	12,674
<u>MORBIDITY</u> ^b			
All Ages	2,133,298	2,906,220	2,870,958
Ages 5-54	291,431	477,150	485,414
Ages 10-54	289,221	473,244	483,324
Ages 5-49	177,438	272,335	279,091
Ages 10-49	175,228	268,429	277,001

^aBased on national mortality data.

^bBased on the National Hospital Discharge Survey Data.

Table 13-22
Computational Data Required for Calculating Numbers of
Deaths Among Medicare-Eligible Patients
(Ratios and Percents Only)

<u>NEED CATEGORY</u>	<u>YEAR</u>		
	<u>1979</u>	<u>1978</u>	<u>1977</u>
(RATIO AND PERCENT OF HOSPITAL DISCHARGES TO DEATHS)			
<u>ALL AGES</u>			
Ratio	1:8	1:8	1:8
Percent	12.1	13.2	13.0
<u>AGES 5-54</u>			
Ratio	1:21	1:20	1:20
Percent	4.8	5.1	5.0
<u>AGES 10-54</u>			
Ratio	1:20	1:21	1:20
Percent	5.1	4.8	5.0
<u>AGES 5-49</u>			
Ratio	1:23	1:21	1:23
Percent	4.4	4.7	4.6
<u>AGES 10-49</u>			
Ratio	1:23	1:21	1:22
Percent	4.4	4.7	4.6

The next step in the analysis was to apply the percentages in Table 13-22 to the need data contained in Tables 13-11 through 13-15, above. The percentages were used to calculate the baseline numbers in the "all races" category for Tables 13-23 through 13-27. The remaining numbers were then determined based on the same percentage distributions contained in Tables 13-11 through 13-15, above.

Tables 13-23 through 13-27 show the approximate race and sex distribution of Medicare beneficiaries who died who may have potentially benefited from a heart transplant. In all need categories, whites are the largest group of potential recipients. With the exception of the "all ages" need category, the largest group of potential recipients is white males. Also, in all need categories other than "all ages," more Medicare-eligible men die of heart conditions for which heart transplantation is indicated than women. Both these trends probably do not hold in the "all ages" category because of the greater life expectancy of women.

Table 13-28 summarizes the data contained in Tables 13-23 through 13-27 and shows the expected number of deaths among Medicare beneficiaries for whom heart transplantation may have been appropriate. As shown here, it is estimated that within the 10-54 need category, between 1,000 and 1,400 Medicare-eligible people may have benefited from heart transplantation prior to death. If a more stringent age selection criterion is used, for example, age 10-49, the number of potential Medicare-eligible recipients would be between 424 and 630.

Table 13-23
 Race and Sex Breakdown for "ALL AGES" Need Category
 (Medicare Patient Mortality)

<u>RACE/SEX</u>	<u>YEAR</u>		
	<u>1979</u>	<u>1978</u>	<u>1977</u>
ALL RACES	84,924	118,029	121,857
Male	39,829	57,244	58,491
Female	45,095	60,785	63,366
WHITE ONLY	76,007	105,518	109,306
Male	35,766	51,405	52,700
Female	40,241	54,113	56,606
ALL OTHER	8,917	12,511	12,551
Male	4,063	5,839	5,791
Female	4,854	6,672	6,760

Table 13-24
Race and Sex Breakdown for "AGES 5-54" Need Category
(Medicare Patient Mortality)

<u>RACE/SEX</u>	<u>YEAR</u>		
	<u>1979</u>	<u>1978</u>	<u>1977</u>
ALL RACES	972	1,458	1,421
Male	695	1,061	1,046
Female	277	397	375
WHITE ONLY	812	1,226	1,215
Male	597	911	914
Female	215	315	301
ALL OTHER	160	232	206
Male	98	150	132
Female	62	82	74

Table 13-25
 Race and Sex Breakdown for "AGES 10-54" Need Category
 (Medicare Patient Mortality)

<u>RACE/SEX</u>	<u>YEAR</u>		
	<u>1979</u>	<u>1978</u>	<u>1977</u>
ALL RACES	1,012	1,372	1,421
Male	724	999	1,046
Female	288	373	375
WHITE ONLY	845	1,154	1,215
Male	621	857	914
Female	224	297	301
ALL OTHER	167	218	206
Male	103	142	132
Female	64	76	74

Table 13-26
Race and Sex Breakdown for "AGES 5-49" Need Category
(Medicare Patient Mortality)

<u>RACE/SEX</u>	<u>YEAR</u>		
	<u>1979</u>	<u>1978</u>	<u>1977</u>
ALL RACES	424	647	630
Male	306	481	475
Female	118	166	155
WHITE ONLY	346	532	525
Male	259	405	405
Female	87	127	120
ALL OTHER	78	115	105
Male	47	76	70
Female	31	39	35

Table 13-27
 Race and Sex Breakdown for "AGES 10-49" Need Category
 (Medicare Patient Mortality)

<u>RACE/SEX</u>	<u>YEAR</u>		
	<u>1979</u>	<u>1978</u>	<u>1977</u>
ALL RACES	424	647	630
Male	306	481	475
Female	118	166	155
WHITE ONLY	346	532	525
Male	258	405	404
Female	88	127	120
ALL OTHER	78	115	105
Male	48	76	71
Female	30	39	34

Table 13-28
 Year-to-Year Estimates of the Number of Deaths Among
 Medicare-Eligible Persons With Conditions For Whom
 Heart Transplantation May Be Indicated,
 According to Need Category

<u>YEAR</u>	<u>NEED CATEGORY</u>				
	<u>ALL AGES</u>	<u>AGES 5-54</u>	<u>AGES 10-54</u>	<u>AGES 5-49</u>	<u>AGES 10-49</u>
1979 ^a	84,924	972	1,012	424	424
1978 ^b	118,029	1,458	1,372	647	647
1977 ^b	121,857	1,421	1,421	630	630

^aBased on the International Classification of Diseases, 9th Revision.

^bBased on the International Classification of Diseases, 8th Revision.

Clearly the number of Medicare beneficiaries who might benefit from a heart transplant is quite small. Moreover, considering that many of these people may fail to meet the other more stringent patient selection criteria, the number of beneficiaries would even be smaller, unless, of course, the patient selection criteria are radically altered. There is sufficient reason to believe that many Medicare beneficiaries may fail to meet other selection criteria because they are likely to be sicker than individuals who do not qualify for Medicare prior to their 65th birthday.

To summarize, based on 1979 data, it is expected that 1,012 Medicare beneficiaries between the ages of 10-54 years may have benefited from a heart transplant, of which 724 would be men and 288 women. A more specific breakdown of cases would yield the following race and sex breakdown:

- . 621 White males
- . 224 White females
- . 103 Males of all other races (including blacks)
- . 64 Females of all other races (including blacks)

D. CONCLUSION

The results presented here are not intended to be definitive. They are based on Medicare beneficiary data that were intended for purposes other than those pursued here. Nonetheless, these are the only data available upon which such estimates can be based. They simply provide some order of magnitude for the number of Medicare

beneficiaries for whom heart transplantation may be indicated. The need estimates presented here should not be construed as point estimates. Year-to-year variability is clearly a factor to be considered in assessing the precision of the estimates.

The mortality analyses are highly speculative and must be viewed as such. The type of data required for a more refined analysis of mortality among Medicare beneficiaries is simply nonexistent. Although valuable for gaining a sense of the order of magnitude, the validity and precision of the imputation procedure followed here has not been demonstrated. Yet, if anything, there is reason to believe that the mortality estimates may overstate the number of potential candidates. For example, it is not wholly appropriate to equate Medicare beneficiaries who are admitted to hospitals with people in the general population who are ultimately discharged (dead or alive) with the numerous conditions for which heart transplantation may be indicated. In effect, Medicare beneficiaries may have more contraindications to heart transplantation than patients in the general population.

Nonetheless, the combined morbidity and mortality analyses undertaken in this chapter do converge in a manner to underscore a single point--the number of current Medicare beneficiaries with an appropriate condition, and of a suitable age, for heart transplantation is very small when compared with the population at large, even though the latter was smaller than expected. Over time it may be possible to refine these analyses to produce highly accurate estimates of the need for cardiac transplantation. Simultaneously it will

become possible to examine how liberalization in the heart transplant selection criteria as well as liberalization in Medicare eligibility requirements may affect the level of heart transplant activity in the U.S.

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APPENDIX 13-A

DETAILED MEDICARE BENEFICIARIES TABLES, 1979



Table 13-A-1
 ALL MEDICARE PERSONS DISCHARGED FROM HOSPITALS IN U.S., 1979
 MALIGNANT NEOPLASM OF THE HEART
 ICD-9-CM 164.1

<u>AGE</u>	<u>ALL RACES</u>		<u>WHITE</u>		<u>OTHER ONLY</u>		<u>BLACK ONLY</u>	
	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>
0-4								
5-9								
10-14								
15-19								
20-24								
25-29								
30-34								
35-39								
40-44								
45-49								
50-54								
55-59								
60-64								
65-69								
70-74								
75 up								
Not Stated								
TOTALS								
SUM BY RACE								

Table 13-A-2
ALL MEDICARE PERSONS DISCHARGED FROM HOSPITALS IN U.S., 1979
MITRAL STENOSIS
ICD-9-CM 394.0

<u>AGE</u>	<u>ALL RACES</u>		<u>WHITE</u>		<u>OTHER ONLY</u>		<u>BLACK ONLY</u>	
	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>
0-4	0	0	0	0	0	0	0	0
5-9	0	0	0	0	0	0	0	0
10-14	0	0	0	0	0	0	0	0
15-19	0	0	0	0	0	0	0	0
20-24	0	5	0	0	0	0	0	5
25-29	0	0	0	0	0	0	0	0
30-34	0	5	0	5	0	0	0	0
35-39	5	25	5	20	0	0	0	5
40-44	20	25	20	20	0	0	0	5
45-49	40	50	10	35	5	0	25	15
50-54	30	90	25	85	0	0	5	5
55-59	40	125	35	125	5	0	0	0
60-64	80	105	80	95	0	10	0	0
65-69	150	745	150	710	0	20	0	15
70-74	65	415	60	380	0	15	5	20
75 up	105	280	105	265	0	10	0	5
Not Stated	0	0	0	0	0	0	0	0
TOTALS	535	1870	490	1740	10	55	35	75
SUM BY RACE	2405		2230		65		110	

Table 13-A-3
ALL MEDICARE PERSONS DISCHARGED FROM HOSPITALS IN U.S., 1979
RHEUMATIC MITRAL INSUFFICIENCY
ICD-9-CM 394.1

AGE	ALL RACES		WHITE		OTHER ONLY		BLACK ONLY	
	MALE	FEMALE	MALE	FEMALE	MALE	FEMALE	MALE	FEMALE
0-4	0	0	0	0	0	0	0	0
5-9	0	0	0	0	0	0	0	0
10-14	0	0	0	0	0	0	0	0
15-19	0	0	0	0	0	0	0	0
20-24	0	0	0	0	0	0	0	0
25-29	0	0	0	0	0	0	0	0
30-34	0	0	0	0	0	0	0	0
35-39	0	0	0	0	0	0	0	0
40-44	0	0	0	0	0	0	0	0
45-49	0	5	0	5	0	0	0	0
50-54	0	0	0	0	0	0	0	0
55-59	5	5	0	5	5	0	0	0
60-64	0	20	0	20	0	0	0	0
65-69	25	20	25	20	0	0	0	0
70-74	5	40	5	35	0	5	0	0
75 up	20	40	20	40	0	0	0	0
Not Stated	0	0	0	0	0	0	0	0
TOTALS	55	130	50	125	5	5	0	0
SUM BY RACE	185		175		10		0	

Table 13-A-4
ALL MEDICARE PERSONS DISCHARGED FROM HOSPITALS ALIVE IN U.S., 1979
MITRAL STENOSIS WITH INSUFFICIENCY
ICD-9-CM 394.2

<u>AGE</u>	<u>ALL RACES</u>		<u>WHITE</u>		<u>OTHER ONLY</u>		<u>BLACK ONLY</u>	
	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>
0-4	0	0	0	0	0	0	0	0
5-9	0	0	0	0	0	0	0	0
10-14	0	0	0	0	0	0	0	0
15-19	0	0	0	0	0	0	0	0
20-24	0	0	0	0	0	0	0	0
25-29	0	0	0	0	0	0	0	0
30-34	0	0	0	0	0	0	0	0
35-39	0	5	0	5	0	0	0	0
40-44	0	0	0	0	0	0	0	0
45-49	0	0	0	0	0	0	0	0
50-54	0	15	0	10	0	0	0	5
55-59	5	20	5	15	0	0	0	5
60-64	5	15	5	10	0	0	0	5
65-69	20	60	20	60	0	0	0	0
70-74	5	20	0	20	5	0	0	0
75 up	0	30	0	25	0	5	0	0
Not Stated	0	0	0	0	0	0	0	0
TOTALS	35	165	30	145	5	5	0	15
SUM BY RACE	200		175		10		15	

Table 13-A-5
ALL MEDICARE PERSONS DISCHARGED FROM HOSPITALS ALIVE IN U.S., 1979
OTHER AND UNSPECIFIED MITRAL VALVE DISEASES
ICD-9-CM 394.9

AGE	ALL RACES		WHITE		OTHER ONLY		BLACK ONLY	
	MALE	FEMALE	MALE	FEMALE	MALE	FEMALE	MALE	FEMALE
0-4	0	0	0	0	0	0	0	0
5-9	0	0	0	0	0	0	0	0
10-14	0	0	0	0	0	0	0	0
15-19	0	0	0	0	0	0	0	0
20-24	5	0	5	0	0	0	0	0
25-29	5	0	5	0	0	0	0	0
30-34	5	0	5	0	0	0	0	0
35-39	5	15	5	10	0	0	0	5
40-44	0	20	0	20	0	0	0	0
45-49	15	40	10	40	0	0	5	0
50-54	35	150	35	140	0	5	0	5
55-59	65	95	60	90	5	5	0	0
60-64	85	130	80	120	0	0	5	10
65-69	300	695	285	605	5	60	10	30
70-74	205	355	185	330	10	15	10	10
75 up	185	330	185	285	0	15	0	30
Not Stated	0	0	0	0	0	0	0	0
TOTALS	910	1830	860	1640	20	100	30	90
SUM BY RACE	2740		2500		120		120	

Table 13-A-6
ALL MEDICARE PERSONS DISCHARGED FROM HOSPITALS IN U.S., 1979
RHEUMATIC AORTIC STENOSIS
ICD-9-CM 395.0

<u>AGE</u>	<u>ALL RACES</u>		<u>WHITE</u>		<u>OTHER ONLY</u>		<u>BLACK ONLY</u>	
	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>
0-4	0	0	0	0	0	0	0	0
5-9	0	0	0	0	0	0	0	0
10-14	0	0	0	0	0	0	0	0
15-19	0	0	0	0	0	0	0	0
20-24	0	0	0	0	0	0	0	0
25-29	0	0	0	0	0	0	0	0
30-34	0	0	0	0	0	0	0	0
35-39	0	0	0	0	0	0	0	0
40-44	0	0	0	0	0	0	0	0
45-49	0	0	0	0	0	0	0	0
50-54	0	0	0	0	0	0	0	0
55-59	5	0	5	0	0	0	0	0
60-64	0	0	0	0	0	0	0	0
65-69	5	10	5	10	0	0	0	0
70-74	15	10	15	10	0	0	0	0
75 up	5	5	5	5	0	0	0	0
Not Stated	0	0	0	0	0	0	0	0
TOTALS	30	25	30	25	0	0	0	0
SUM BY RACE	55		55		0		0	

Table 13-A-7
ALL MEDICARE PERSONS DISCHARGED FROM HOSPITALS IN U.S., 1979
RHEUMATIC AORTIC INSUFFICIENCY
ICD-9-CM 395.1

<u>AGE</u>	<u>ALL RACES</u>		<u>WHITE</u>		<u>OTHER ONLY</u>		<u>BLACK ONLY</u>	
	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>
0-4	0	0	0	0	0	0	0	0
5-9	0	0	0	0	0	0	0	0
10-14	0	0	0	0	0	0	0	0
15-19	0	0	0	0	0	0	0	0
20-24	0	0	0	0	0	0	0	0
25-29	0	0	0	0	0	0	0	0
30-34	0	0	0	0	0	0	0	0
35-39	0	0	0	0	0	0	0	0
40-44	0	5	0	0	0	0	0	5
45-49	0	0	0	0	0	0	0	0
50-54	5	0	0	0	0	0	5	0
55-59	0	0	0	0	0	0	0	0
60-64	0	5	0	5	0	0	0	0
65-69	15	0	15	0	0	0	0	0
70-74	10	0	10	0	0	0	0	0
75 up	5	15	5	15	0	0	0	0
Not Stated	0	0	0	0	0	0	0	0
TOTALS	35	25	30	20	0	0	5	5
SUM BY RACE	60		50		0		10	

Table 13-A-8
ALL MEDICARE PERSONS DISCHARGED FROM HOSPITALS IN U.S., 1979
RHEUMATIC AORTIC STENOSIS WITH INSUFFICIENCY
ICD-9-CM 395.2

<u>AGE</u>	<u>ALL RACES</u>		<u>WHITE</u>		<u>OTHER ONLY</u>		<u>BLACK ONLY</u>	
	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>
0-4	0	0	0	0	0	0	0	0
5-9	0	0	0	0	0	0	0	0
10-14	0	0	0	0	0	0	0	0
15-19	0	0	0	0	0	0	0	0
20-24	0	0	0	0	0	0	0	0
25-29	0	0	0	0	0	0	0	0
30-34	0	0	0	0	0	0	0	0
35-39	0	0	0	0	0	0	0	0
40-44	0	0	0	0	0	0	0	0
45-49	0	0	0	0	0	0	0	0
50-54	0	0	0	0	0	0	0	0
55-59	0	0	0	0	0	0	0	0
60-64	0	0	0	0	0	0	0	0
65-69	5	10	5	5	0	0	0	5
70-74	0	10	0	10	0	0	0	0
75 up	10	25	10	25	0	0	0	0
Not Stated	0	0	0	0	0	0	0	0
TOTALS	15	45	15	40	0	0	0	5
SUM BY RACE	60		55		0		5	

Table 13-A-9
ALL MEDICARE PERSONS DISCHARGED FROM HOSPITALS IN U.S., 1979
OTHER AND UNSPECIFIED RHEUMATIC AORTIC DISEASES
ICD-9-CM 395.9

AGE	ALL RACES		WHITE		OTHER ONLY		BLACK ONLY	
	MALE	FEMALE	MALE	FEMALE	MALE	FEMALE	MALE	FEMALE
0-4	0	0	0	0	0	0	0	0
5-9	0	0	0	0	0	0	0	0
10-14	0	0	0	0	0	0	0	0
15-19	0	0	0	0	0	0	0	0
20-24	0	0	0	0	0	0	0	0
25-29	0	0	0	0	0	0	0	0
30-34	0	0	0	0	0	0	0	0
35-39	0	0	0	0	0	0	0	0
40-44	0	0	0	0	0	0	0	0
45-49	5	0	5	0	0	0	0	0
50-54	5	5	5	5	0	0	0	0
55-59	0	0	0	0	0	0	0	0
60-64	5	0	5	0	0	0	0	0
65-69	15	10	15	10	0	0	0	0
70-74	30	5	30	5	0	0	0	0
75 up	15	10	15	10	0	0	0	0
Not Stated	0	0	0	0	0	0	0	0
TOTALS	75	30	75	30	0	0	0	0
SUM BY RACE	105		105		0		0	

Table 13-A-10
ALL MEDICARE PERSONS DISCHARGED FROM HOSPITALS IN U.S., 1979
MITRAL VALVE STENOSIS AND AORTIC VALVE STENOSIS
ICD-9-CM 396.0

<u>AGE</u>	<u>ALL RACES</u>		<u>WHITE</u>		<u>OTHER ONLY</u>		<u>BLACK ONLY</u>	
	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>
0-4	0	0	0	0	0	0	0	0
5-9	0	0	0	0	0	0	0	0
10-14	0	0	0	0	0	0	0	0
15-19	0	0	0	0	0	0	0	0
20-24	0	0	0	0	0	0	0	0
25-29	0	0	0	0	0	0	0	0
30-34	0	0	0	0	0	0	0	0
35-39	0	5	0	0	0	0	0	5
40-44	0	0	0	0	0	0	0	0
45-49	0	0	0	0	0	0	0	0
50-54	5	0	5	0	0	0	0	0
55-59	5	0	5	0	0	0	0	0
60-64	5	10	5	10	0	0	0	0
65-69	20	30	20	30	0	0	0	0
70-74	10	10	10	10	0	0	0	0
75 up	25	40	25	40	0	0	0	0
Not Stated	0	0	0	0	0	0	0	0
TOTALS	70	95	70	90	0	0	0	5
SUM BY RACE	165		160		0		5	

Table 13-A-11
ALL MEDICARE PERSONS DISCHARGED FROM HOSPITALS IN U.S., 1979
MITRAL VALVE STENOSIS AND AORTIC VALVE INSUFFICIENCY
ICD-9-CM 396.1

AGE	ALL RACES		WHITE		OTHER ONLY		BLACK ONLY	
	MALE	FEMALE	MALE	FEMALE	MALE	FEMALE	MALE	FEMALE
0-4	0	0	0	0	0	0	0	0
5-9	0	0	0	0	0	0	0	0
10-14	0	0	0	0	0	0	0	0
15-19	0	0	0	0	0	0	0	0
20-24	0	0	0	0	0	0	0	0
25-29	0	0	0	0	0	0	0	0
30-34	0	0	0	0	0	0	0	0
35-39	0	5	0	5	0	0	0	0
40-44	5	0	0	0	0	0	5	0
45-49	0	0	0	0	0	0	0	0
50-54	0	0	0	0	0	0	0	0
55-59	5	10	5	10	0	0	0	0
60-64	15	10	15	10	0	0	0	0
65-69	30	50	30	50	0	0	0	0
70-74	25	20	20	20	0	0	5	0
75 up	30	30	25	25	0	5	5	0
Not Stated	0	0	0	0	0	0	0	0
TOTALS	110	125	95	120	0	5	15	0
SUM BY RACE	235		215		5		15	

Table 13-A-12
ALL MEDICARE PERSONS DISCHARGED FROM HOSPITALS IN U.S., 1979
MITRAL VALVE INSUFFICIENCY AND AORTIC VALVE STENOSIS
ICD-9-CM 396.2

<u>AGE</u>	<u>ALL RACES</u>		<u>WHITE</u>		<u>OTHER ONLY</u>		<u>BLACK ONLY</u>	
	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>
0-4	0	0	0	0	0	0	0	0
5-9	0	0	0	0	0	0	0	0
10-14	0	0	0	0	0	0	0	0
15-19	0	0	0	0	0	0	0	0
20-24	0	0	0	0	0	0	0	0
25-29	0	0	0	0	0	0	0	0
30-34	0	0	0	0	0	0	0	0
35-39	0	0	0	0	0	0	0	0
40-44	0	0	0	0	0	0	0	0
45-49	0	0	0	0	0	0	0	0
50-54	0	0	0	0	0	0	0	0
55-59	0	5	0	5	0	0	0	0
60-64	0	10	0	5	0	5	0	0
65-69	15	50	15	45	0	5	0	0
70-74	30	55	30	50	0	5	0	0
75 up	15	80	10	75	0	0	5	5
Not Stated	0	0	0	0	0	0	0	0
TOTALS	60	200	55	180	0	15	5	5
SUM BY RACE	260		235		15		10	

Table 13-A-13
ALL MEDICARE PERSONS DISCHARGED FROM HOSPITALS IN U.S., 1979
MITRAL VALVE INSUFFICIENCY AND AORTIC VALVE INSUFFICIENCY
ICD-9-CM 396.3

AGE	ALL RACES		WHITE		OTHER ONLY		BLACK ONLY	
	MALE	FEMALE	MALE	FEMALE	MALE	FEMALE	MALE	FEMALE
0-4	0	0	0	0	0	0	0	0
5-9	0	0	0	0	0	0	0	0
10-14	0	0	0	0	0	0	0	0
15-19	0	0	0	0	0	0	0	0
20-24	0	0	0	0	0	0	0	0
25-29	0	0	0	0	0	0	0	0
30-34	0	0	0	0	0	0	0	0
35-39	0	0	0	0	0	0	0	0
40-44	0	10	0	10	0	0	0	0
45-49	0	0	0	0	0	0	0	0
50-54	0	0	0	0	0	0	0	0
55-59	0	10	0	10	0	0	0	0
60-64	0	15	0	10	0	5	0	0
65-69	20	40	20	40	0	0	0	0
70-74	15	15	15	10	0	0	0	5
75 up	30	10	25	0	0	5	5	5
Not Stated	0	0	0	0	0	0	0	0
TOTALS	65	100	60	80	0	10	5	10
SUM BY RACE	165		140		10		15	

Table 13-A-14
ALL MEDICARE PERSONS DISCHARGED FROM HOSPITALS IN U.S., 1979
MULTIPLE INVOLVEMENT OF MITRAL AND AORTIC VALVES
ICD-9-CM 396.8

<u>AGE</u>	<u>ALL RACES</u>		<u>WHITE</u>		<u>OTHER ONLY</u>		<u>BLACK ONLY</u>	
	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>
0-4	0	0	0	0	0	0	0	0
5-9	0	0	0	0	0	0	0	0
10-14	0	0	0	0	0	0	0	0
15-19	0	0	0	0	0	0	0	0
20-24	0	0	0	0	0	0	0	0
25-29	0	0	0	0	0	0	0	0
30-34	0	0	0	0	0	0	0	0
35-39	0	0	0	0	0	0	0	0
40-44	0	0	0	0	0	0	0	0
45-49	0	0	0	0	0	0	0	0
50-54	0	5	0	5	0	0	0	0
55-59	0	5	0	5	0	0	0	0
60-64	0	0	0	0	0	0	0	0
65-69	0	5	0	5	0	0	0	0
70-74	5	0	5	0	0	0	0	0
75 up	0	15	0	15	0	0	0	0
Not Stated	0	0	0	0	0	0	0	0
TOTALS	5	30	5	30	0	0	0	0
SUM BY RACE	35		35		0		0	

Table 13-A-15
ALL MEDICARE PERSONS DISCHARGED FROM HOSPITALS IN U.S., 1979
MULTIPLE AND AORTIC VALVE DISEASES, UNSPECIFIED
ICD-9-CM 396.9

AGE	ALL RACES		WHITE		OTHER ONLY		BLACK ONLY	
	MALE	FEMALE	MALE	FEMALE	MALE	FEMALE	MALE	FEMALE
0-4	0	0	0	0	0	0	0	0
5-9	0	0	0	0	0	0	0	0
10-14	0	0	0	0	0	0	0	0
15-19	0	0	0	0	0	0	0	0
20-24	0	0	0	0	0	0	0	0
25-29	0	0	0	0	0	0	0	0
30-34	0	0	0	0	0	0	0	0
35-39	0	5	0	5	0	0	0	0
40-44	0	0	0	0	0	0	0	0
45-49	0	5	0	5	0	0	0	0
50-54	5	0	5	0	0	0	0	0
55-59	0	0	0	0	0	0	0	0
60-64	0	10	0	10	0	0	0	0
65-69	10	35	5	35	0	0	5	0
70-74	35	25	35	25	0	0	0	0
75 up	15	25	15	25	0	0	0	0
Not Stated	0	0	0	0	0	0	0	0
TOTALS	65	105	60	105	0	0	0	0
SUM BY RACE	170		165		0		5	

Table 13-A-16
ALL MEDICARE PERSONS DISCHARGED FROM HOSPITALS IN U.S., 1979
RHEUMATIC MYOCARDITIS
ICD-9-CM 398.0

<u>AGE</u>	<u>ALL RACES</u>		<u>WHITE</u>		<u>OTHER ONLY</u>		<u>BLACK ONLY</u>	
	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>
0-4	0	0	0	0	0	0	0	0
5-9	0	0	0	0	0	0	0	0
10-14	0	0	0	0	0	0	0	0
15-19	0	0	0	0	0	0	0	0
20-24	0	0	0	0	0	0	0	0
25-29	0	0	0	0	0	0	0	0
30-34	0	0	0	0	0	0	0	0
35-39	0	0	0	0	0	0	0	0
40-44	0	0	0	0	0	0	0	0
45-49	0	0	0	0	0	0	0	0
50-54	0	0	0	0	0	0	0	0
55-59	0	0	0	0	0	0	0	0
60-64	0	0	0	0	0	0	0	0
65-69	0	0	0	0	0	0	0	0
70-74	0	0	0	0	0	0	0	0
75 up	0	0	0	0	0	0	0	0
Not Stated	0	0	0	0	0	0	0	0
TOTALS	0	0	0	0	0	0	0	0
SUM BY RACE	0		0		0		0	

Table 13-A-17
ALL MEDICARE PERSONS DISCHARGED FROM HOSPITALS IN U.S., 1979
OTHER AND UNSPECIFIED RHEUMATIC HEART DISEASES
ICD-9-CM 398.9, 398.90, 398.91, 398.99

AGE	ALL RACES		WHITE		OTHER ONLY		BLACK ONLY	
	MALE	FEMALE	MALE	FEMALE	MALE	FEMALE	MALE	FEMALE
0-4	0	0	0	0	0	0	0	0
5-9	0	0	0	0	0	0	0	0
10-14	0	0	0	0	0	0	0	0
15-19	0	0	0	0	0	0	0	0
20-24	5	0	0	0	0	0	5	0
25-29	5	5	5	5	0	0	0	0
30-34	30	20	25	20	0	0	5	0
35-39	40	75	35	70	0	0	5	5
40-44	90	70	75	65	15	0	0	5
45-49	100	115	90	110	5	5	5	0
50-54	155	300	130	270	10	0	15	30
55-59	175	420	175	365	0	20	0	35
60-64	225	445	210	410	0	15	15	20
65-69	745	1900	690	1775	50	85	5	40
70-74	545	1520	510	1440	20	30	15	50
75 up	425	1695	400	1590	5	30	20	75
Not Stated	0	0	0	0	0	0	0	0
TOTALS	2540	6565	2345	6120	105	185	90	260
SUM BY RACE	9105		8465		290		350	

Table 13-A-18
ALL MEDICARE PATIENTS DISCHARGED FROM HOSPITALS IN U.S., 1979
CORONARY ATHEROSCLEROSIS
ICD-9-CM 414.0

<u>AGE</u>	<u>ALL RACES</u>		<u>WHITE</u>		<u>OTHER ONLY</u>		<u>BLACK ONLY</u>	
	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>
0-4	0	0	0	0	0	0	0	0
5-9	0	0	0	0	0	0	0	0
10-14	0	0	0	0	0	0	0	0
15-19	5	0	5	0	0	0	0	0
20-24	5	0	5	0	0	0	0	0
25-29	20	10	20	10	0	0	0	0
30-34	75	30	75	30	0	0	0	0
35-39	455	75	405	75	10	0	40	0
40-44	875	230	795	170	40	0	40	60
45-49	2360	490	2205	330	30	0	125	160
50-54	4665	1325	4220	1130	95	25	350	170
55-59	7470	2735	6825	2345	215	35	430	355
60-64	11025	5115	10085	4570	400	155	540	390
65-69	41325	28480	37970	25615	1805	1095	1550	1770
70-74	32365	33160	29840	30160	1110	1035	1415	1965
75 up	62635	99930	57770	91815	1610	2715	3255	5400
Not Stated	0	0	0	0	0	0	0	0
TOTALS	163280	171580	150220	156250	5315	5060	7745	10270
SUM BY RACE	334860		306470		10375		18015	

Table 13-A-19
ALL MEDICARE PATIENTS DISCHARGED FROM HOSPITALS IN U.S., 1979
ANEURYSM OF HEART
ICD-9-CM 414.1

AGE	ALL RACES		WHITE		OTHER ONLY		BLACK ONLY	
	MALE	FEMALE	MALE	FEMALE	MALE	FEMALE	MALE	FEMALE
0-4	0	0	0	0	0	0	0	0
5-9	0	0	0	0	0	0	0	0
10-14	0	0	0	0	0	0	0	0
15-19	0	0	0	0	0	0	0	0
20-24	0	0	0	0	0	0	0	0
25-29	0	0	0	0	0	0	0	0
30-34	0	0	0	0	0	0	0	0
35-39	0	0	0	0	0	0	0	0
40-44	0	5	0	5	0	0	0	0
45-49	5	0	5	0	0	0	0	0
50-54	30	10	30	5	0	0	0	5
55-59	10	20	10	20	0	0	0	0
60-64	55	30	55	25	0	0	0	5
65-69	100	65	95	65	5	0	0	0
70-74	110	55	105	45	0	0	5	10
75 up	70	45	65	35	0	0	5	10
Not Stated	0	0	0	0	0	0	0	0
TOTALS	380	230	365	200	5	0	10	30
SUM BY RACE	610		565		5		40	

Table 13-A-20
ALL MEDICARE PATIENTS DISCHARGED FROM HOSPITALS IN U.S., 1979
OTHER SPECIFIED FORMS OF CHRONIC ISCHEMIC HEART DISEASE
ICD-9-CM 414.8

<u>AGE</u>	<u>ALL RACES</u>		<u>WHITE</u>		<u>OTHER ONLY</u>		<u>BLACK ONLY</u>	
	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>
0-4	0	0	0	0	0	0	0	0
5-9	0	0	0	0	0	0	0	0
10-14	0	0	0	0	0	0	0	0
15-19	0	0	0	0	0	0	0	0
20-24	0	0	0	0	0	0	0	0
25-29	5	0	0	0	0	0	5	0
30-34	0	5	0	5	0	0	0	0
35-39	10	0	10	0	0	0	0	0
40-44	30	50	30	40	0	0	0	10
45-49	60	20	55	15	0	0	5	5
50-54	130	110	110	85	0	5	20	20
55-59	140	90	120	80	10	0	10	10
60-64	270	160	235	145	10	0	25	15
65-69	1035	930	955	790	25	35	55	105
70-74	705	985	620	870	40	40	45	75
75 up	1070	2190	1005	2015	30	20	35	155
Not Stated	0	0	0	0	0	0	0	0
TOTALS	3455	4540	3140	4045	115	100	200	395
SUM BY RACE	7995		7185		215		595	

Table 13-A-21
ALL MEDICARE PATIENTS DISCHARGED FROM HOSPITALS IN U.S., 1979
AORTIC VALVE DISORDERS
ICD-9-CM 424.1

<u>AGE</u>	<u>ALL RACES</u>		<u>WHITE</u>		<u>OTHER ONLY</u>		<u>BLACK ONLY</u>	
	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>
0-4	0	0	0	0	0	0	0	0
5-9	0	5	0	5	0	0	0	0
10-14	0	0	0	0	0	0	0	0
15-19	0	0	0	0	0	0	0	0
20-24	10	15	5	10	0	0	5	5
25-29	15	0	10	0	0	0	5	0
30-34	5	0	5	0	0	0	0	0
35-39	15	20	10	20	0	0	5	0
40-44	20	15	15	15	0	0	5	0
45-49	70	35	65	30	0	0	5	5
50-54	125	50	110	45	10	0	5	5
55-59	200	130	185	115	0	0	15	15
60-64	340	195	290	165	10	0	40	30
65-69	2425	1390	2200	1200	85	65	140	125
70-74	1970	1700	1800	1555	90	25	80	120
75 up	2285	3165	2150	2830	30	100	105	235
Not Stated	0	0	0	0	0	0	0	0
TOTALS	7480	6720	6845	5990	225	190	410	540
SUM BY RACE	14200		12835		415		950	

Table 13-A-22
ALL MEDICARE PATIENTS DISCHARGED FROM HOSPITALS IN U.S., 1979
ENDOMYOCARDIAL FIBROSIS
ICD-9-CM 425.0

<u>AGE</u>	<u>ALL RACES</u>		<u>WHITE</u>		<u>OTHER ONLY</u>		<u>BLACK ONLY</u>	
	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>
0-4	0	0	0	0	0	0	0	0
5-9	0	0	0	0	0	0	0	0
10-14	0	0	0	0	0	0	0	0
15-19	0	0	0	0	0	0	0	0
20-24	0	0	0	0	0	0	0	0
25-29	0	0	0	0	0	0	0	0
30-34	0	0	0	0	0	0	0	0
35-39	0	0	0	0	0	0	0	0
40-44	0	0	0	0	0	0	0	0
45-49	0	0	0	0	0	0	0	0
50-54	0	0	0	0	0	0	0	0
55-59	0	0	0	0	0	0	0	0
60-64	0	0	0	0	0	0	0	0
65-69	5	0	5	0	0	0	0	0
70-74	5	5	0	5	0	0	5	0
75 up	5	15	5	5	0	5	0	5
Not Stated	0	0	0	0	0	0	0	0
TOTALS	15	20	10	10	0	5	5	5
SUM BY RACE	35		20		5		10	

Table 13-A-23
ALL MEDICARE PATIENTS DISCHARGED FROM HOSPITALS IN U.S., 1979
OTHER PRIMARY CARDIOMYOPATHIES
ICD-9-CM 425.4

AGE	ALL RACES		WHITE		OTHER ONLY		BLACK ONLY	
	MALE	FEMALE	MALE	FEMALE	MALE	FEMALE	MALE	FEMALE
0-4	0	0	0	0	0	0	0	0
5-9	0	0	0	0	0	0	0	0
10-14	5	0	0	0	0	0	5	0
15-19	5	0	5	0	0	0	0	0
20-24	10	0	10	0	0	0	0	0
25-29	5	0	5	0	0	0	0	0
30-34	50	5	30	5	0	0	20	0
35-39	80	30	30	20	5	0	45	10
40-44	120	40	75	10	5	0	40	30
45-49	150	60	110	35	0	0	40	25
50-54	310	70	225	40	0	5	85	25
55-59	440	140	365	105	5	5	70	30
60-64	520	220	430	190	20	20	70	10
65-69	1455	960	1245	880	80	25	130	55
70-74	885	640	750	515	50	30	85	95
75 up	820	870	695	750	15	30	110	90
Not Stated	0	0	0	0	0	0	0	0
TOTALS	4855	3035	3975	2550	180	115	700	370
SUM BY RACE	7890		6525		295		1070	

Table 13-A-24
ALL MEDICARE PATIENTS DISCHARGED FROM HOSPITALS IN U.S., 1979
CONGESTIVE HEART FAILURE
ICD-9-CM 428.0

	<u>ALL RACES</u>		<u>WHITE</u>		<u>OTHER ONLY</u>		<u>BLACK ONLY</u>	
<u>AGE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>
0-4	0	0	0	0	0	0	0	0
5-9	0	0	0	0	0	0	0	0
10-14	5	0	0	0	0	0	5	0
15-19	0	10	0	0	0	0	0	10
20-24	65	35	50	35	0	0	15	0
25-29	60	40	45	15	0	5	15	20
30-34	105	115	65	80	15	10	25	25
35-39	230	65	165	45	5	0	60	20
40-44	490	205	360	140	5	5	125	60
45-49	865	450	665	305	15	0	185	145
50-54	1755	850	1440	600	50	15	265	235
55-59	3700	2135	2960	1625	150	30	590	480
60-64	5950	3775	4835	3035	235	110	880	630
65-69	23375	20160	19975	16780	935	945	2465	2435
70-74	26580	26775	22975	23000	1120	885	2485	2890
75 up	67310	104065	60575	92885	1555	3055	5180	8125
Not Stated	0	0	0	0	0	0	0	0
TOTALS	130490	158680	114110	138545	4085	5060	12295	15075
SUM BY RACE	289170		252655		9145		27370	

Table 13-A-25
ALL MEDICARE PATIENTS DISCHARGED FROM HOSPITALS IN U.S., 1979
LEFT HEART FAILURE
ICD-9-CM 428.1

AGE	ALL RACES		WHITE		OTHER ONLY		BLACK ONLY	
	MALE	FEMALE	MALE	FEMALE	MALE	FEMALE	MALE	FEMALE
0-4	0	0	0	0	0	0	0	0
5-9	0	0	0	0	0	0	0	0
10-14	0	0	0	0	0	0	0	0
15-19	0	0	0	0	0	0	0	0
20-24	10	0	10	0	0	0	0	0
25-29	0	0	0	0	0	0	0	0
30-34	5	0	5	0	0	0	0	0
35-39	0	0	0	0	0	0	0	0
40-44	10	5	10	5	0	0	0	0
45-49	25	0	20	0	0	0	5	0
50-54	80	25	60	15	5	0	15	10
55-59	105	45	95	25	5	0	5	20
60-64	195	105	180	80	0	0	15	25
65-69	760	675	680	570	30	50	50	55
70-74	895	680	805	590	30	35	60	55
75 up	1655	2560	1515	2260	40	125	100	175
Not Stated	0	0	0	0	0	0	0	0
TOTALS	3740	4095	3380	3545	110	210	250	340
SUM BY RACE	7835		6925		320		590	

Table 13-A-26
ALL MEDICARE PATIENTS DISCHARGED FROM HOSPITALS IN U.S., 1979
HEART FAILURE, UNSPECIFIED
ICD-9-CM 428.9

<u>AGE</u>	<u>ALL RACES</u>		<u>WHITE</u>		<u>OTHER ONLY</u>		<u>BLACK ONLY</u>	
	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>
0-4	0	0	0	0	0	0	0	0
5-9	0	0	0	0	0	0	0	0
10-14	0	0	0	0	0	0	0	0
15-19	0	0	0	0	0	0	0	0
20-24	5	0	0	0	0	0	5	0
25-29	25	5	15	5	0	0	10	0
30-34	10	0	5	0	0	0	5	0
35-39	15	5	15	5	0	0	0	0
40-44	25	15	20	10	0	0	5	5
45-49	45	30	35	20	0	0	10	10
50-54	125	20	100	20	0	0	25	0
55-59	225	120	210	75	0	0	15	45
60-64	460	210	375	135	10	5	75	70
65-69	1210	1155	1015	905	55	90	140	160
70-74	1525	1375	1275	1070	65	75	185	230
75 up	3740	5305	3385	4670	60	160	295	475
Not Stated	0	0	0	0	0	0	0	0
TOTALS	7410	8240	6450	6915	190	330	770	995
SUM BY RACE	15650		13365		520		1765	

Table 13-A-27
ALL MEDICARE PATIENTS DISCHARGED FROM HOSPITALS IN U.S., 1979
MYOCARDITIS, UNSPECIFIED
ICD-9-CM 429.0

AGE	ALL RACES		WHITE		OTHER ONLY		BLACK ONLY	
	MALE	FEMALE	MALE	FEMALE	MALE	FEMALE	MALE	FEMALE
0-4	0	0	0	0	0	0	0	0
5-9	0	0	0	0	0	0	0	0
10-14	0	0	0	0	0	0	0	0
15-19	0	0	0	0	0	0	0	0
20-24	0	0	0	0	0	0	0	0
25-29	0	5	0	5	0	0	0	0
30-34	5	5	5	5	0	0	0	0
35-39	0	5	0	5	0	0	0	0
40-44	0	0	0	0	0	0	0	0
45-49	0	0	0	0	0	0	0	0
50-54	20	10	20	10	0	0	0	0
55-59	50	5	40	5	0	0	10	0
60-64	0	0	0	0	0	0	0	0
65-69	85	65	75	60	5	0	5	5
70-74	85	80	80	75	0	0	5	5
75 up	210	275	185	245	20	5	5	25
Not Stated	0	0	0	0	0	0	0	0
TOTALS	455	450	405	410	25	5	25	35
SUM BY RACE	905		815		30		60	

Table 13-A-28
ALL MEDICARE PATIENTS DISCHARGED FROM HOSPITALS IN U.S., 1979
MYOCARDIAL DEGENERATION
ICD-9-CM 429.1

<u>AGE</u>	<u>ALL RACES</u>		<u>WHITE</u>		<u>OTHER ONLY</u>		<u>BLACK ONLY</u>	
	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>
0-4	0	0	0	0	0	0	0	0
5-9	0	0	0	0	0	0	0	0
10-14	0	0	0	0	0	0	0	0
15-19	0	0	0	0	0	0	0	0
20-24	0	0	0	0	0	0	0	0
25-29	0	0	0	0	0	0	0	0
30-34	0	0	0	0	0	0	0	0
35-39	5	0	5	0	0	0	0	0
40-44	10	0	10	0	0	0	0	0
45-49	15	5	15	5	0	0	0	0
50-54	15	10	10	10	0	0	5	0
55-59	30	15	30	15	0	0	0	0
60-64	80	25	45	25	0	0	35	0
65-69	245	240	225	220	0	0	20	20
70-74	265	175	230	145	5	15	30	15
75 up	350	475	330	425	5	20	15	30
Not Stated	0	0	0	0	0	0	0	0
TOTALS	1015	945	900	845	10	35	105	65
SUM BY RACE	1960		1745		45		170	

Table 13-A-29
ALL MEDICARE PATIENTS DISCHARGED FROM HOSPITALS IN U.S., 1979
CARDIOMEGALY
ICD-9-CM 429.3

<u>AGE</u>	<u>ALL RACES</u>		<u>WHITE</u>		<u>OTHER ONLY</u>		<u>BLACK ONLY</u>	
	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>
0-4	0	0	0	0	0	0	0	0
5-9	0	0	0	0	0	0	0	0
10-14	0	0	0	0	0	0	0	0
15-19	0	0	0	0	0	0	0	0
20-24	5	5	5	5	0	0	0	0
25-29	5	0	5	0	0	0	0	0
30-34	10	0	10	0	0	0	0	0
35-39	15	5	5	5	0	0	10	0
40-44	25	0	25	0	0	0	0	0
45-49	20	20	20	15	0	0	0	5
50-54	30	35	15	15	0	10	5	20
55-59	75	45	55	40	0	0	20	5
60-64	115	75	90	50	0	0	25	25
65-69	405	475	330	375	20	15	60	80
70-74	395	570	335	435	30	15	45	105
75 up	845	1625	750	1445	50	25	70	130
Not Stated	0	0	0	0	0	0	0	0
TOTALS	1945	2855	1645	2385	100	65	235	370
SUM BY RACE	4800		4030		165		605	

Table 13-A-30
ALL MEDICARE PERSONS DISCHARGED FROM HOSPITALS IN U.S., 1979
SUMMARY ALL AGES AND ALL CONDITIONS
SELECTED CONDITIONS FOR WHICH HEART TRANSPLANTATION IS INDICATED

<u>AGE</u>	<u>ALL RACES</u>		<u>WHITE</u>		<u>OTHER ONLY</u>		<u>BLACK ONLY</u>	
	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>
0-4	0	0	0	0	0	0	0	0
5-9	0	5	0	5	0	0	0	0
10-14	10	0	0	0	0	0	10	0
15-19	10	10	10	0	0	0	0	10
20-24	120	60	90	50	0	0	30	10
25-29	145	65	110	40	0	5	35	20
30-34	300	185	230	150	15	10	55	25
35-39	875	340	690	290	20	0	165	50
40-44	1720	695	1435	510	65	5	220	180
45-49	3775	1325	3310	950	55	5	410	370
50-54	7525	3080	6545	2490	170	65	800	535
55-59	12750	6175	11185	5080	400	95	1165	1000
60-64	19430	10685	17020	9125	685	325	1725	1235
65-69	73800	58255	66070	50860	3100	2490	4635	4900
70-74	66785	68700	59745	60810	2575	2225	4480	5650
75 up	141880	223150	129275	201820	3420	6330	9210	14975
Not Stated	0	0	0	0	0	0	0	0
TOTALS	329125	372730	295715	332180	10505	11555	22940	28960
SUM BY RACE	701855		627895		22060		51900	

Table 13-A-31
 ALL MEDICARE PERSONS DISCHARGED FROM HOSPITALS IN U.S., 1979
 AGES 5-54 ONLY
 SELECTED CONDITIONS FOR WHICH HEART TRANSPLANTATION IS INDICATED

<u>AGE</u>	<u>ALL RACES</u>		<u>WHITE</u>		<u>OTHER ONLY</u>		<u>BLACK ONLY</u>	
	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>
0-4								
5-9	0	5	0	5	0	0	0	0
10-14	10	0	0	0	0	0	10	0
15-19	10	10	10	0	0	0	0	10
20-24	120	60	90	50	0	0	30	10
25-29	145	65	110	40	0	5	35	20
30-34	300	185	230	150	15	10	55	25
35-39	875	340	690	290	20	0	165	50
40-44	1720	695	1435	510	65	5	220	180
45-49	3775	1325	3310	950	55	5	410	370
50-54	7525	3080	6545	2490	170	65	800	535
55-59								
60-64								
65-69								
70-74								
75 up								
Not Stated	0	0	0	0	0	0	0	0
TOTALS	14480	5765	12420	4485	325	90	1725	1200
SUM BY RACE	20245		16905		415		2925	

Table 13-A-32
ALL MEDICARE PERSONS DISCHARGED FROM HOSPITALS IN U.S., 1979
AGES 10-54 ONLY
SELECTED CONDITIONS FOR WHICH HEART TRANSPLANTATION IS INDICATED

<u>AGE</u>	<u>ALL RACES</u>		<u>WHITE</u>		<u>OTHER ONLY</u>		<u>BLACK ONLY</u>	
	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>
0-4								
5-9								
10-14	10	0	0	0	0	0	10	0
15-19	10	10	10	0	0	0	0	10
20-24	120	60	90	50	0	0	30	10
25-29	145	65	110	40	0	5	35	20
30-34	300	185	230	150	15	10	55	25
35-39	875	340	690	290	20	0	165	50
40-44	1720	695	1435	510	65	5	220	180
45-49	3775	1325	3310	950	55	5	410	370
50-54	7525	3080	6545	2490	170	65	800	535
55-59								
60-64								
65-69								
70-74								
75 up								
Not Stated	0	0	0	0	0	0	0	0
TOTALS	14480	5760	12420	4480	325	90	1725	1200
SUM BY RACE	20240		16900		415		2925	

Table 13-A-33
ALL MEDICARE PERSONS DISCHARGED FROM HOSPITALS IN U.S., 1979
AGES 5-49 ONLY
SELECTED CONDITIONS FOR WHICH HEART TRANSPLANTATION IS INDICATED

<u>AGE</u>	<u>ALL RACES</u>		<u>WHITE</u>		<u>OTHER ONLY</u>		<u>BLACK ONLY</u>	
	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>
0-4								
5-9	0	5	0	5	0	0	0	0
10-14	10	0	0	0	0	0	10	0
15-19	10	10	10	0	0	0	0	10
20-24	120	60	90	50	0	0	30	10
25-29	145	65	110	40	0	5	35	20
30-34	300	185	230	150	15	10	55	25
35-39	875	340	690	290	20	0	165	50
40-44	1720	695	1435	510	65	5	220	180
45-49	3775	1325	3310	950	55	5	410	370
50-54								
55-59								
60-64								
65-69								
70-74								
75 up								
Not Stated	0	0	0	0	0	0	0	0
TOTALS	6955	2685	5875	1995	155	25	925	665
SUM BY RACE	9640		7870		180		1590	

Table 13-A-34
ALL MEDICARE PERSONS DISCHARGED FROM HOSPITALS IN U.S., 1979
AGES 10-49 ONLY
SELECTED CONDITIONS FOR WHICH HEART TRANSPLANTATION IS INDICATED

<u>AGE</u>	<u>ALL RACES</u>		<u>WHITE</u>		<u>OTHER ONLY</u>		<u>BLACK ONLY</u>	
	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>
0-4								
5-9								
10-14	10	0	0	0	0	0	10	0
15-19	10	10	10	0	0	0	0	10
20-24	120	60	90	50	0	0	30	10
25-29	145	65	110	40	0	5	35	20
30-34	300	185	230	150	15	10	55	25
35-39	875	340	690	290	20	0	165	50
40-44	1720	695	1435	510	65	5	220	180
45-49	3775	1325	3310	950	55	5	410	370
50-54								
55-59								
60-64								
65-69								
70-74								
75 up								
Not Stated	0	0	0	0	0	0	0	0
TOTALS	6955	2680	5875	1990	155	25	925	665
SUM BY RACE	9635		7865		180		1590	

APPENDIX 13-B

DETAILED MEDICARE BENEFICIARIES TABLES, 1978



Table 13-B-1
ALL MEDICARE PERSONS DISCHARGED FROM HOSPITALS IN U.S., 1978
MALIGNANT NEOPLASM OF THE TRUNK
ICDA-8-REV. 171.1

<u>AGE</u>	<u>ALL RACES</u>		<u>WHITE</u>		<u>OTHER ONLY</u>		<u>BLACK ONLY</u>	
	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>
0-4								
5-9								
10-14								
15-19								
20-24								
25-29								
30-34								
35-39			FILE NOT ABSTRACTED					
40-44								
45-49								
50-54								
55-59								
60-64								
65-69								
70-74								
75 up								
Not Stated								
TOTALS								
SUM BY RACE								

Table 13-B-2
ALL MEDICARE PERSONS DISCHARGED FROM HOSPITALS IN U.S., 1978
DISEASES OF THE MITRAL VALVE SPECIFIED AS RHEUMATIC
ICDA-8-REV. 394.0

<u>AGE</u>	<u>ALL RACES</u>		<u>WHITE</u>		<u>OTHER ONLY</u>		<u>BLACK ONLY</u>	
	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>
0-4	0	0	0	0	0	0	0	0
5-9	0	0	0	0	0	0	0	0
10-14	0	0	0	0	0	0	0	0
15-19	0	0	0	0	0	0	0	0
20-24	5	5	0	0	0	0	5	5
25-29	0	0	0	0	0	0	0	0
30-34	15	0	15	0	0	0	0	0
35-39	10	5	10	5	0	0	0	0
40-44	20	20	20	15	0	0	0	5
45-49	25	40	15	40	0	0	10	0
50-54	20	70	20	65	0	0	0	5
55-59	40	110	35	100	0	0	5	10
60-64	60	185	60	175	0	0	0	10
65-69	235	570	225	550	0	10	10	10
70-74	125	380	120	375	0	5	5	0
75 up	90	305	90	290	0	5	0	10
Not Stated	0	0	0	0	0	0	0	0
TOTALS	645	1690	610	1615	0	20	35	55
SUM BY RACE	2335		2225		20		90	

Table 13-B-3
ALL MEDICARE PERSONS DISCHARGED FROM HOSPITALS IN U.S., 1978
DISEASES OF THE MITRAL VALVE NOT SPECIFIED AS RHEUMATIC
ICDA-8-REV. 394.9

AGE	ALL RACES		WHITE		OTHER ONLY		BLACK ONLY	
	MALE	FEMALE	MALE	FEMALE	MALE	FEMALE	MALE	FEMALE
0-4	0	0	0	0	0	0	0	0
5-9	0	0	0	0	0	0	0	0
10-14	0	0	0	0	0	0	0	0
15-19	0	0	0	0	0	0	0	0
20-24	20	5	10	0	0	0	10	5
25-29	5	5	0	5	0	0	5	0
30-34	20	25	15	25	0	0	5	0
35-39	5	35	5	30	0	0	0	5
40-44	55	80	45	75	0	0	10	5
45-49	55	75	35	70	15	0	5	5
50-54	100	195	85	185	0	0	15	10
55-59	130	185	125	185	5	0	0	0
60-64	115	330	110	300	5	5	0	25
65-69	865	1740	805	1555	20	150	40	35
70-74	590	910	530	825	20	25	40	60
75 up	600	1255	570	1160	10	20	20	75
Not Stated	0	0	0	0	0	0	0	0
TOTALS	2560	4840	2335	4415	75	200	150	225
SUM BY RACE	7400		6750		275		375	

Table 13-B-4
ALL MEDICARE PERSONS DISCHARGED FROM HOSPITALS ALIVE IN U.S., 1978
DISEASES OF THE AORTIC VALVE SPECIFIED AS RHEUMATIC
ICDA-8-REV. 395.0

<u>AGE</u>	<u>ALL RACES</u>		<u>WHITE</u>		<u>OTHER ONLY</u>		<u>BLACK ONLY</u>	
	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>
0-4	0	0	0	0	0	0	0	0
5-9	0	0	0	0	0	0	0	0
10-14	0	0	0	0	0	0	0	0
15-19	0	0	0	0	0	0	0	0
20-24	0	0	0	0	0	0	0	0
25-29	0	0	0	0	0	0	0	0
30-34	15	0	0	0	0	0	15	0
35-39	5	0	5	0	0	0	0	0
40-44	10	5	10	5	0	0	0	0
45-49	0	0	0	0	0	0	0	0
50-54	20	15	20	15	0	0	0	0
55-59	5	5	5	5	0	0	0	0
60-64	15	40	15	40	0	0	0	0
65-69	95	120	90	115	5	5	0	0
70-74	30	100	25	85	0	0	5	15
75 up	40	90	40	85	0	0	0	5
Not Stated	0	0	0	0	0	0	0	0
TOTALS	235	375	210	350	5	5	20	20
SUM BY RACE	610		560		10		40	

Table 13-B-5
ALL MEDICARE PERSONS DISCHARGED FROM HOSPITALS ALIVE IN U.S., 1978
DISEASES OF THE AORTIC VALVE NOT SPECIFIED AS RHEUMATIC
ICDA-8-REV. 395.9

AGE	ALL RACES		WHITE		OTHER ONLY		BLACK ONLY	
	MALE	FEMALE	MALE	FEMALE	MALE	FEMALE	MALE	FEMALE
0-4	0	0	0	0	0	0	0	0
5-9	0	0	0	0	0	0	0	0
10-14	0	0	0	0	0	0	0	0
15-19	0	0	0	0	0	0	0	0
20-24	0	20	0	20	0	0	0	0
25-29	10	0	5	0	0	0	5	0
30-34	15	0	5	0	0	0	10	0
35-39	25	20	20	15	0	0	5	5
40-44	60	20	40	20	0	0	20	0
45-49	60	25	50	25	0	0	10	0
50-54	95	60	90	55	0	0	5	5
55-59	175	120	160	85	0	0	15	35
60-64	530	230	490	205	0	0	40	25
65-69	2245	1520	2060	1380	70	70	115	70
70-74	1910	1430	1720	1270	55	55	135	105
75 up	2255	2900	2005	2550	80	80	170	270
Not Stated	0	0	0	0	0	0	0	0
TOTALS	7380	6345	6645	5625	205	205	530	515
SUM BY RACE	13725		12270		410		1045	

Table 13-B-6
ALL MEDICARE PERSONS DISCHARGED FROM HOSPITALS IN U.S., 1978
DISEASES OF THE MITRAL AND AORTIC VALVE SPECIFIED AS RHEUMATIC
ICDA-8-REV. 396.0

AGE	ALL RACES		WHITE		OTHER ONLY		BLACK ONLY	
	MALE	FEMALE	MALE	FEMALE	MALE	FEMALE	MALE	FEMALE
0-4	0	0	0	0	0	0	0	0
5-9	0	0	0	0	0	0	0	0
10-14	0	0	0	0	0	0	0	0
15-19	0	0	0	0	0	0	0	0
20-24	0	5	0	0	0	0	0	5
25-29	0	0	0	0	0	0	0	0
30-34	0	0	0	0	0	0	0	0
35-39	0	0	0	0	0	0	0	0
40-44	5	0	5	0	0	0	0	0
45-49	0	10	0	10	0	0	0	0
50-54	0	0	0	0	0	0	0	0
55-59	0	0	0	0	0	0	0	0
60-64	5	30	5	30	0	0	0	0
65-69	25	35	25	35	0	0	0	0
70-74	15	40	15	40	0	0	0	0
75 up	10	20	10	20	0	0	0	0
Not Stated	0	0	0	0	0	0	0	0
TOTALS	60	140	60	135	0	0	0	5
SUM BY RACE	200		195		0		5	

Table 13-B-7
ALL MEDICARE PERSONS DISCHARGED FROM HOSPITALS IN U.S., 1978
DISEASES OF THE MITRAL AND AORTIC VALVES NOT SPECIFIED AS RHEUMATIC
ICDA-8-REV. 396.9

<u>AGE</u>	<u>ALL RACES</u>		<u>WHITE</u>		<u>OTHER ONLY</u>		<u>BLACK ONLY</u>	
	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>
0-4	0	0	0	0	0	0	0	0
5-9	0	0	0	0	0	0	0	0
10-14	0	0	0	0	0	0	0	0
15-19	0	0	0	0	0	0	0	0
20-24	0	0	0	0	0	0	0	0
25-29	0	0	0	0	0	0	0	0
30-34	0	0	0	0	0	0	0	0
35-39	0	0	0	0	0	0	0	0
40-44	0	0	0	0	0	0	0	0
45-49	0	0	0	0	0	0	0	0
50-54	0	0	0	0	0	0	0	0
55-59	0	0	0	0	0	0	0	0
60-64	0	0	0	0	0	0	0	0
65-69	0	0	0	0	0	0	0	0
70-74	0	0	0	0	0	0	0	0
75 up	0	0	0	0	0	0	0	0
Not Stated	0	0	0	0	0	0	0	0
TOTALS	0	0	0	0	0	0	0	0
SUM BY RACE	0		0		0		0	

Table 13-B-8
ALL MEDICARE PERSONS DISCHARGED FROM HOSPITALS IN U.S., 1978
OTHER HEART DISEASE SPECIFIED AS RHEUMATIC
ICDA-8-REV. 398.0

<u>AGE</u>	<u>ALL RACES</u>		<u>WHITE</u>		<u>OTHER ONLY</u>		<u>BLACK ONLY</u>	
	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>
0-4	0	0	0	0	0	0	0	0
5-9	0	0	0	0	0	0	0	0
10-14	0	0	0	0	0	0	0	0
15-19	0	0	0	0	0	0	0	0
20-24	15	0	0	0	5	0	10	0
25-29	5	10	0	10	0	0	5	0
30-34	15	20	15	15	0	0	0	5
35-39	45	35	40	25	0	0	5	10
40-44	40	60	25	50	5	0	10	10
45-49	70	130	55	115	5	0	10	15
50-54	120	280	110	240	0	5	10	35
55-59	150	360	150	345	0	0	0	15
60-64	175	450	160	395	10	0	5	55
65-69	665	1530	615	1470	30	35	20	25
70-74	410	1050	380	1005	10	25	20	20
75 up	360	1325	340	1220	10	65	10	40
Not Stated	0	0	0	0	0	0	0	0
TOTALS	2070	5250	1890	4890	75	130	105	230
SUM BY RACE	7320		6780		205		335	

Table 13-B-9
ALL MEDICARE PERSONS DISCHARGED FROM HOSPITALS IN U.S., 1978
CHRONIC ISCHEMIC HEART DISEASE (WITH HYPERTENSIVE DISEASE)
ICDA-8-REV. 412.0

AGE	ALL RACES		WHITE		OTHER ONLY		BLACK ONLY	
	MALE	FEMALE	MALE	FEMALE	MALE	FEMALE	MALE	FEMALE
0-4	0	0	0	0	0	0	0	0
5-9	0	0	0	0	0	0	0	0
10-14	0	0	0	0	0	0	0	0
15-19	0	0	0	0	0	0	0	0
20-24	0	25	0	20	0	0	0	5
25-29	5	0	5	0	0	0	0	0
30-34	45	0	5	0	0	0	40	0
35-39	60	10	45	5	0	0	15	5
40-44	160	70	85	40	5	5	70	25
45-49	290	170	185	110	5	0	100	60
50-54	630	265	455	180	15	0	160	85
55-59	885	710	695	475	15	15	175	220
60-64	1430	1270	1040	965	60	45	330	260
65-69	5850	7735	4780	6260	260	370	810	1105
70-74	4880	7500	4000	6305	220	230	660	965
75 up	7685	19135	6510	16375	190	545	985	2215
Not Stated	0	0	0	0	0	0	0	0
TOTALS	21920	36890	17805	30735	770	1210	3345	4945
SUM BY RACE	58810		48540		1980		8290	

Table 13-B-10
ALL MEDICARE PERSONS DISCHARGED FROM HOSPITALS IN U.S., 1978
CHRONIC ISCHEMIC HEART DISEASE WITHOUT MENTION OF HYPERTENSION
ICDA-8-REV. 412.9

<u>AGE</u>	<u>ALL RACES</u>		<u>WHITE</u>		<u>OTHER ONLY</u>		<u>BLACK ONLY</u>	
	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>
0-4	5	0	0	0	5	0	0	0
5-9	0	0	0	0	0	0	0	0
10-14	0	0	0	0	0	0	0	0
15-19	0	0	0	0	0	0	0	0
20-24	5	10	5	5	0	0	0	5
25-29	35	40	35	35	0	0	0	5
30-34	205	35	175	30	0	0	30	5
35-39	590	85	525	70	0	5	65	10
40-44	1720	450	1620	350	30	0	70	100
45-49	3910	895	3580	715	55	15	275	165
50-54	7380	2220	6720	1895	155	15	505	310
55-59	11725	4785	10730	4055	290	30	705	700
60-64	17760	8070	16125	7130	560	150	1075	790
65-69	64195	44115	58600	39800	2640	1655	2955	2660
70-74	56450	49235	51815	44660	1605	1385	3030	3190
75 up	108135	156460	100165	142850	2225	4790	5745	8820
Not Stated	0	0	0	0	0	0	0	0
TOTALS	272115	266400	250095	241595	7565	8045	14455	16760
SUM BY RACE	538515		491690		15610		31215	

Table 13-B-11
ALL MEDICARE PERSONS DISCHARGED FROM HOSPITALS IN U.S., 1978
ACUTE MYOCARDITIS
ICDA-8-REV. 422.0

AGE	ALL RACES		WHITE		OTHER ONLY		BLACK ONLY	
	MALE	FEMALE	MALE	FEMALE	MALE	FEMALE	MALE	FEMALE
0-4	0	0	0	0	0	0	0	0
5-9	0	0	0	0	0	0	0	0
10-14	0	0	0	0	0	0	0	0
15-19	0	0	0	0	0	0	0	0
20-24	0	0	0	0	0	0	0	0
25-29	0	0	0	0	0	0	0	0
30-34	5	0	5	0	0	0	0	0
35-39	10	0	10	0	0	0	0	0
40-44	5	0	5	0	0	0	0	0
45-49	0	5	0	0	0	0	0	0
50-54	10	0	10	0	0	0	0	0
55-59	20	5	15	5	0	0	5	0
60-64	5	0	5	0	0	0	0	0
65-69	75	35	70	35	0	0	5	0
70-74	30	30	20	30	5	0	5	0
75 up	50	90	50	75	0	10	0	5
Not Stated	0	0	0	0	0	0	0	0
TOTALS	210	165	190	145	5	10	15	10
SUM BY RACE	375		335		15		25	

Table 13-B-12
ALL MEDICARE PERSONS DISCHARGED FROM HOSPITALS IN U.S., 1978
CHRONIC DISEASE OF ENDOCARDIUM (OF AORTIC VALVE, NONRHEUMATIC)
ICDA-8-REV. 424.1

<u>AGE</u>	<u>ALL RACES</u>		<u>WHITE</u>		<u>OTHER ONLY</u>		<u>BLACK ONLY</u>	
	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>
0-4	0	0	0	0	0	0	0	0
5-9	0	0	0	0	0	0	0	0
10-14	0	0	0	0	0	0	0	0
15-19	0	0	0	0	0	0	0	0
20-24	0	0	0	0	0	0	0	0
25-29	0	0	0	0	0	0	0	0
30-34	0	0	0	0	0	0	0	0
35-39	0	0	0	0	0	0	0	0
40-44	0	0	0	0	0	0	0	0
45-49	0	0	0	0	0	0	0	0
50-54	0	0	0	0	0	0	0	0
55-59	0	0	0	0	0	0	0	0
60-64	5	5	0	5	0	0	5	0
65-69	25	45	25	30	0	5	0	10
70-74	30	25	25	20	5	0	0	5
75 up	55	45	55	45	0	0	0	0
Not Stated	0	0	0	0	0	0	0	0
TOTALS	115	120	105	100	5	5	5	15
SUM BY RACE	235		205		10		20	

Table 13-B-13
ALL MEDICARE PERSONS DISCHARGED FROM HOSPITALS IN U.S., 1978
CARDIOMYOPATHY
ICDA-8-REV. 425.0

AGE	ALL RACES		WHITE		OTHER ONLY		BLACK ONLY	
	MALE	FEMALE	MALE	FEMALE	MALE	FEMALE	MALE	FEMALE
0-4	0	5	0	0	0	0	0	5
5-9	0	0	0	0	0	0	0	0
10-14	0	0	0	0	0	0	0	0
15-19	0	0	0	0	0	0	0	0
20-24	5	0	5	0	0	0	0	0
25-29	25	0	20	0	0	0	5	0
30-34	60	15	35	10	0	0	25	5
35-39	85	15	35	5	0	0	50	10
40-44	130	45	120	30	0	0	10	15
45-49	155	65	130	60	0	0	25	5
50-54	300	100	215	75	5	0	80	25
55-59	340	145	275	105	5	0	60	40
60-64	515	275	405	225	10	15	100	35
65-69	1345	775	1140	680	80	10	125	85
70-74	700	565	580	495	25	15	95	55
75 up	640	795	530	700	15	5	95	90
Not Stated	0	0	0	0	0	0	0	0
TOTALS	4300	2800	3490	2385	140	45	670	370
SUM BY RACE	7100		5875		185		1040	

Table 13-B-14
ALL MEDICARE PERSONS DISCHARGED FROM HOSPITALS IN U.S., 1978
CONGESTIVE HEART FAILURE
ICDA-8-REV. 427.0

<u>AGE</u>	<u>ALL RACES</u>		<u>WHITE</u>		<u>OTHER ONLY</u>		<u>BLACK ONLY</u>	
	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>
0-4	0	0	0	0	0	0	0	0
5-9	0	0	0	0	0	0	0	0
10-14	0	5	0	5	0	0	0	0
15-19	0	5	0	5	0	0	0	0
20-24	80	65	40	45	0	5	40	15
25-29	105	45	80	35	10	0	15	10
30-34	130	50	75	35	0	5	55	10
35-39	230	65	170	50	0	0	60	15
40-44	365	130	275	65	10	5	80	60
45-49	635	360	455	250	40	10	140	100
50-54	1505	790	1180	600	30	10	295	180
55-59	2845	1600	2280	1185	105	15	460	400
60-64	4890	3150	4105	2525	180	90	605	535
65-69	18680	14460	15715	11980	835	590	2130	1890
70-74	21135	19195	18115	16415	760	670	2260	2110
75 up	51740	74100	46520	66045	1275	2355	3945	5700
Not Stated	0	0	0	0	0	0	0	0
TOTALS	102340	114020	89010	99240	3245	3755	10085	11025
SUM BY RACE	216360		188250		7000		21110	

Table 13-B-15
ALL MEDICARE PERSONS DISCHARGED FROM HOSPITALS IN U.S., 1978
LEFT VENTRICULAR FAILURE
ICDA-8-REV. 427.1

AGE	ALL RACES		WHITE		OTHER ONLY		BLACK ONLY	
	MALE	FEMALE	MALE	FEMALE	MALE	FEMALE	MALE	FEMALE
0-4	0	0	0	0	0	0	0	0
5-9	0	0	0	0	0	0	0	0
10-14	0	0	0	0	0	0	0	0
15-19	0	0	0	0	0	0	0	0
20-24	0	0	0	0	0	0	0	0
25-29	0	5	0	5	0	0	0	0
30-34	0	0	0	0	0	0	0	0
35-39	5	0	5	0	0	0	0	0
40-44	20	0	15	0	5	0	0	0
45-49	15	5	5	5	0	0	10	0
50-54	45	25	45	20	0	0	0	5
55-59	45	35	40	30	0	0	5	5
60-64	85	55	75	50	0	0	10	5
65-69	445	440	400	385	15	40	30	15
70-74	480	480	425	415	25	35	30	30
75 up	1035	1330	935	1170	40	85	60	75
Not Stated	0	0	0	0	0	0	0	0
TOTALS	2175	2375	1945	2080	85	160	145	135
SUM BY RACE	4550		4025		245		280	

Table 13-B-16
ALL MEDICARE PERSONS DISCHARGED FROM HOSPITALS IN U.S., 1978
OTHER MYOCARDIAL INSUFFICIENCY
ICDA-8-REV. 428.0

<u>AGE</u>	<u>ALL RACES</u>		<u>WHITE</u>		<u>OTHER ONLY</u>		<u>BLACK ONLY</u>	
	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>
0-4	0	0	0	0	0	0	0	0
5-9	0	0	0	0	0	0	0	0
10-14	0	0	0	0	0	0	0	0
15-19	0	0	0	0	0	0	0	0
20-24	0	5	0	5	0	0	0	0
25-29	5	0	5	0	0	0	0	0
30-34	0	0	0	0	0	0	0	0
35-39	15	0	15	0	0	0	0	0
40-44	20	5	15	5	0	0	5	0
45-49	10	20	10	20	0	0	0	0
50-54	80	45	65	45	5	0	10	0
55-59	165	20	145	15	0	0	20	5
60-64	165	125	145	110	5	0	15	15
65-69	595	515	535	415	15	15	45	85
70-74	560	495	505	445	20	15	35	35
75 up	1160	1610	1050	1455	20	75	90	80
Not Stated	0	0	0	0	0	0	0	0
TOTALS	2775	2840	2490	2515	65	105	220	220
SUM BY RACE	5615		5005		170		440	

Table 13-B-17
ALL MEDICARE PERSONS DISCHARGED FROM HOSPITALS IN U.S., 1978
ILL-DEFINED HEART DISEASE (OTHER AND UNSPECIFIED)
ICDA-8-REV. 429.9

AGE	ALL RACES		WHITE		OTHER ONLY		BLACK ONLY	
	MALE	FEMALE	MALE	FEMALE	MALE	FEMALE	MALE	FEMALE
0-4	0	0	0	0	0	0	0	0
5-9	0	0	0	0	0	0	0	0
10-14	5	0	5	0	0	0	0	0
15-19	0	0	0	0	0	0	0	0
20-24	10	10	5	5	0	5	5	0
25-29	30	25	25	15	0	0	5	10
30-34	40	10	25	10	0	0	15	0
35-39	90	25	55	20	0	5	35	0
40-44	95	45	80	30	0	0	15	15
45-49	195	60	175	30	0	0	20	30
50-54	280	170	235	105	0	10	45	55
55-59	515	340	430	280	10	0	75	60
60-64	805	470	645	390	30	15	130	65
65-69	3310	2725	2860	2335	170	115	280	275
70-74	3185	2920	2715	2540	150	75	320	305
75 up	6540	9110	5785	7955	120	270	635	885
Not Stated	0	0	0	0	0	0	0	0
TOTALS	15100	15910	13040	13715	480	495	1580	1700
SUM BY RACE	31010		26755		975		3280	

Table 13-B-18
ALL MEDICARE PERSONS DISCHARGED FROM HOSPITALS IN U.S., 1978
SUMMARY ALL AGES AND ALL CONDITIONS
SELECTED CONDITIONS FOR WHICH HEART TRANSPLANTATION IS INDICATED

<u>AGE</u>	<u>ALL RACES</u>		<u>WHITE</u>		<u>OTHER ONLY</u>		<u>BLACK ONLY</u>	
	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>
0-4	5	5	0	0	5	0	0	5
5-9	0	0	0	0	0	0	0	0
10-14	5	5	5	5	0	0	0	0
15-19	0	5	0	5	0	0	0	0
20-24	140	150	65	100	5	10	70	40
25-29	225	130	175	105	10	0	40	25
30-34	565	155	370	125	0	5	195	25
35-39	1175	295	940	225	0	10	235	60
40-44	2705	930	2360	685	55	10	290	235
45-49	5420	1860	4695	1450	120	25	605	385
50-54	10585	4235	9250	3480	210	40	1125	715
55-59	17040	8420	15085	6870	430	60	1525	1490
60-64	26560	14685	23385	12545	860	320	2315	1820
65-69	98650	76360	87945	67025	4140	3070	6565	6265
70-74	90530	84355	80990	74925	2900	2535	6640	6895
75 up	180395	268570	164655	241995	3985	8305	11755	18270
Not Stated	0	0	0	0	0	0	0	0
TOTALS	434000	460160	389920	409540	12720	14390	31360	36230
SUM BY RACE	894160		799460		27110		67590	

Table 13-B-19
ALL MEDICARE PERSONS DISCHARGED FROM HOSPITALS IN U.S., 1978
AGES 5-54 ONLY
SELECTED CONDITIONS FOR WHICH HEART TRANSPLANTATION IS INDICATED

<u>AGE</u>	<u>ALL RACES</u>		<u>WHITE</u>		<u>OTHER ONLY</u>		<u>BLACK ONLY</u>	
	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>
0-4								
5-9	0	0	0	0	0	0	0	0
10-14	5	5	5	5	0	0	0	0
15-19	0	5	0	5	0	0	0	0
20-24	140	150	65	100	5	10	70	40
25-29	225	130	175	105	10	0	40	25
30-34	565	155	370	125	0	5	195	25
35-39	1175	295	940	225	0	10	235	60
40-44	2705	930	2360	685	55	10	290	235
45-49	5420	1860	4695	1450	120	25	605	385
50-54	10585	4235	9250	3480	210	40	1125	715
55-59								
60-64								
65-69								
70-74								
75 up								
Not Stated	0	0	0	0	0	0	0	0
TOTALS	20820	7765	17860	6180	400	100	2560	1485
SUM BY RACE	28585		24040		500		4045	

Table 13-B-20
ALL MEDICARE PERSONS DISCHARGED FROM HOSPITALS IN U.S., 1978
AGES 10-54 ONLY
SELECTED CONDITIONS FOR WHICH HEART TRANSPLANTATION IS INDICATED

<u>AGE</u>	<u>ALL RACES</u>		<u>WHITE</u>		<u>OTHER ONLY</u>		<u>BLACK ONLY</u>	
	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>
0-4								
5-9								
10-14	5	5	5	5	0	0	0	0
15-19	0	5	0	5	0	0	0	0
20-24	140	150	65	100	5	10	70	40
25-29	225	130	175	105	10	0	40	25
30-34	565	155	370	125	0	5	195	25
35-39	1175	295	940	225	0	10	235	60
40-44	2705	930	2360	685	55	10	290	235
45-49	5420	1860	4695	1450	120	25	605	385
50-54	10585	4235	9250	3480	210	40	1125	715
55-59								
60-64								
65-69								
70-74								
75 up								
Not Stated	0	0	0	0	0	0	0	0
TOTALS	20820	7765	17860	6180	400	100	2560	1485
SUM BY RACE	28585		24040		500		4045	

Table 13-B-21
ALL MEDICARE PERSONS DISCHARGED FROM HOSPITALS IN U.S., 1978
AGES 5-49 ONLY
SELECTED CONDITIONS FOR WHICH HEART TRANSPLANTATION IS INDICATED

<u>AGE</u>	<u>ALL RACES</u>		<u>WHITE</u>		<u>OTHER ONLY</u>		<u>BLACK ONLY</u>	
	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>
0-4								
5-9	0	0	0	0	0	0	0	0
10-14	5	5	5	5	0	0	0	0
15-19	0	5	0	5	0	0	0	0
20-24	140	150	65	100	5	10	70	40
25-29	225	130	175	105	10	0	40	25
30-34	565	155	370	125	0	5	195	25
35-39	1175	295	940	225	0	10	235	60
40-44	2705	930	2360	685	55	10	290	235
45-49	5420	1860	4695	1450	120	25	605	385
50-54								
55-59								
60-64								
65-69								
70-74								
75 up								
Not Stated	0	0	0	0	0	0	0	0
TOTALS	10235	3530	8610	2700	190	60	1435	770
SUM BY RACE	13765		11310		250		2205	

Table 13-B-22
ALL MEDICARE PERSONS DISCHARGED FROM HOSPITALS IN U.S., 1978
AGES 10-49 ONLY
SELECTED CONDITIONS FOR WHICH HEART TRANSPLANTATION IS INDICATED

<u>AGE</u>	<u>ALL RACES</u>		<u>WHITE</u>		<u>OTHER ONLY</u>		<u>BLACK ONLY</u>	
	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>
0-4								
5-9								
10-14	5	5	5	5	0	0	0	0
15-19	0	5	0	5	0	0	0	0
20-24	140	150	65	100	5	10	70	40
25-29	225	130	175	105	10	0	40	25
30-34	565	155	370	125	0	5	195	25
35-39	1175	295	940	225	0	10	235	60
40-44	2705	930	2360	685	55	10	290	235
45-49	5420	1860	4695	1450	120	25	605	385
50-54								
55-59								
60-64								
65-69								
70-74								
75 up								
Not Stated	0	0	0	0	0	0	0	0
TOTALS	10235	3530	8610	2700	190	60	1435	770
SUM BY RACE	13765		11310		250		2205	

APPENDIX 13-C

DETAILED MEDICARE BENEFICIARIES TABLES, 1977



Table 13-C-1
 ALL MEDICARE PERSONS DISCHARGED FROM HOSPITALS IN U.S., 1977
 MALIGNANT NEOPLASM OF THE TRUNK
 ICDA-8-REV. 171.1

<u>AGE</u>	<u>ALL RACES</u>		<u>WHITE</u>		<u>OTHER ONLY</u>		<u>BLACK ONLY</u>	
	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>
0-4								
5-9								
10-14								
15-19								
20-24								
25-29								
30-34								
35-39			FILE NOT ABSTRACTED					
40-44								
45-49								
50-54								
55-59								
60-64								
65-69								
70-74								
75 up								
Not Stated								
TOTALS								
SUM BY RACE								

Table 13-C-2
ALL MEDICARE PERSONS DISCHARGED FROM HOSPITALS IN U.S., 1977
DISEASES OF THE MITRAL VALVE SPECIFIED AS RHEUMATIC
ICDA-8-REV. 394.0

<u>AGE</u>	<u>ALL RACES</u>		<u>WHITE</u>		<u>OTHER ONLY</u>		<u>BLACK ONLY</u>	
	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>
0-4	0	0	0	0	0	0	0	0
5-9	0	0	0	0	0	0	0	0
10-14	0	0	0	0	0	0	0	0
15-19	0	0	0	0	0	0	0	0
20-24	0	0	0	0	0	0	0	0
25-29	5	0	5	0	0	0	0	0
30-34	5	5	5	5	0	0	0	0
35-39	10	20	10	20	0	0	0	0
40-44	10	25	10	20	0	0	0	5
45-49	30	60	20	55	0	0	10	5
50-54	40	115	35	105	5	0	0	10
55-59	50	230	50	215	0	0	0	15
60-64	80	250	75	245	5	0	0	5
65-69	215	815	195	760	5	45	15	10
70-74	150	480	140	455	5	10	5	15
75 up	145	490	140	465	0	15	5	10
Not Stated	0	0	0	0	0	0	0	0
TOTALS	740	2490	685	2345	20	70	35	75
SUM BY RACE	3230		3030		90		110	

Table 13-C-3
ALL MEDICARE PERSONS DISCHARGED FROM HOSPITALS IN U.S., 1977
DISEASES OF THE MITRAL VALVE NOT SPECIFIED AS RHEUMATIC
ICDA-8-REV. 394.9

<u>AGE</u>	<u>ALL RACES</u>		<u>WHITE</u>		<u>OTHER ONLY</u>		<u>BLACK ONLY</u>	
	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>
0-4	0	0	0	0	0	0	0	0
5-9	0	0	0	0	0	0	0	0
10-14	0	0	0	0	0	0	0	0
15-19	5	0	5	0	0	0	0	0
20-24	10	10	5	10	5	0	0	0
25-29	5	10	5	5	0	0	0	5
30-34	20	20	10	20	0	0	10	0
35-39	15	25	15	25	0	0	0	0
40-44	30	75	25	65	0	0	5	10
45-49	90	120	85	100	0	0	5	20
50-54	90	110	85	105	5	0	0	5
55-59	175	280	140	275	15	0	20	5
60-64	235	355	215	305	10	25	10	25
65-69	985	1670	925	1580	20	35	40	55
70-74	650	1000	590	915	15	40	45	45
75 up	620	1250	560	1120	35	30	25	100
Not Stated	0	0	0	0	0	0	0	0
TOTALS	2930	4925	2665	4525	105	130	160	270
SUM BY RACE	7855		7190		235		430	

Table 13-C-4
ALL MEDICARE PERSONS DISCHARGED FROM HOSPITALS ALIVE IN U.S., 1977
DISEASES OF THE AORTIC VALVE SPECIFIED AS RHEUMATIC
ICDA-8-REV. 395.0

<u>AGE</u>	<u>ALL RACES</u>		<u>WHITE</u>		<u>OTHER ONLY</u>		<u>BLACK ONLY</u>	
	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>
0-4	0	0	0	0	0	0	0	0
5-9	0	0	0	0	0	0	0	0
10-14	0	0	0	0	0	0	0	0
15-19	0	0	0	0	0	0	0	0
20-24	0	5	0	0	0	0	0	5
25-29	10	0	0	0	0	0	10	0
30-34	5	0	5	0	0	0	0	0
35-39	0	10	0	10	0	0	0	0
40-44	0	15	0	10	0	0	0	5
45-49	10	15	10	15	0	0	0	0
50-54	10	0	10	0	0	0	0	0
55-59	40	30	40	25	0	0	0	5
60-64	40	25	35	25	0	0	5	0
65-69	175	135	155	135	0	0	20	0
70-74	75	65	70	65	5	0	0	0
75 up	120	170	110	165	5	0	5	5
Not Stated	0	0	0	0	0	0	0	0
TOTALS	485	470	435	450	10	0	40	20
SUM BY RACE	955		885		10		60	

Table 13-C-5
ALL MEDICARE PERSONS DISCHARGED FROM HOSPITALS ALIVE IN U.S., 1977
DISEASES OF THE AORTIC VALVE NOT SPECIFIED AS RHEUMATIC
ICDA-8-REV. 395.9

AGE	ALL RACES		WHITE		OTHER ONLY		BLACK ONLY	
	MALE	FEMALE	MALE	FEMALE	MALE	FEMALE	MALE	FEMALE
0-4	0	0	0	0	0	0	0	0
5-9	0	0	0	0	0	0	0	0
10-14	0	0	0	0	0	0	0	0
15-19	0	0	0	0	0	0	0	0
20-24	0	0	0	0	0	0	0	0
25-29	45	25	30	20	0	5	15	0
30-34	5	5	5	5	0	0	0	0
35-39	0	25	0	25	0	0	0	0
40-44	50	20	25	20	15	0	10	0
45-49	115	65	100	55	0	0	15	10
50-54	130	65	105	45	0	0	25	20
55-59	275	145	205	135	20	0	50	10
60-64	310	170	280	140	5	5	25	25
65-69	2125	1430	1890	1270	130	65	105	95
70-74	1530	1185	1405	1085	25	20	100	80
75 up	1980	2725	1795	2540	40	65	145	120
Not Stated	0	0	0	0	0	0	0	0
TOTALS	6565	5860	5840	5340	235	160	490	360
SUM BY RACE	12425		11180		395		850	

Table 13-C-6
ALL MEDICARE PERSONS DISCHARGED FROM HOSPITALS IN U.S., 1977
DISEASES OF THE MITRAL AND AORTIC VALVE SPECIFIED AS RHEUMATIC
ICDA-8-REV. 396.0

<u>AGE</u>	<u>ALL RACES</u>		<u>WHITE</u>		<u>OTHER ONLY</u>		<u>BLACK ONLY</u>	
	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>
0-4	0	0	0	0	0	0	0	0
5-9	0	0	0	0	0	0	0	0
10-14	0	0	0	0	0	0	0	0
15-19	0	0	0	0	0	0	0	0
20-24	5	0	5	0	0	0	0	0
25-29	10	0	10	0	0	0	0	0
30-34	5	0	5	0	0	0	0	0
35-39	0	0	0	0	0	0	0	0
40-44	5	15	5	15	0	0	0	0
45-49	25	5	25	5	0	0	0	0
50-54	10	10	10	10	0	0	0	0
55-59	5	10	5	10	0	0	0	0
60-64	20	25	20	25	0	0	0	0
65-69	65	85	50	70	5	0	10	15
70-74	25	60	25	50	0	5	0	5
75 up	80	105	70	105	5	0	5	0
Not Stated	0	0	0	0	0	0	0	0
TOTALS	255	315	230	290	10	5	15	20
SUM BY RACE	570		520		15		35	

Table 13-C-7
ALL MEDICARE PERSONS DISCHARGED FROM HOSPITALS IN U.S., 1977
DISEASES OF THE MITRAL AND AORTIC VALVES NOT SPECIFIED AS RHEUMATIC
ICDA-8-REV. 396.9

<u>AGE</u>	<u>ALL RACES</u>		<u>WHITE</u>		<u>OTHER ONLY</u>		<u>BLACK ONLY</u>	
	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>
0-4	0	0	0	0	0	0	0	0
5-9	0	0	0	0	0	0	0	0
10-14	0	0	0	0	0	0	0	0
15-19	0	0	0	0	0	0	0	0
20-24	0	0	0	0	0	0	0	0
25-29	0	0	0	0	0	0	0	0
30-34	0	0	0	0	0	0	0	0
35-39	0	0	0	0	0	0	0	0
40-44	0	0	0	0	0	0	0	0
45-49	0	0	0	0	0	0	0	0
50-54	0	0	0	0	0	0	0	0
55-59	0	0	0	0	0	0	0	0
60-64	0	0	0	0	0	0	0	0
65-69	0	0	0	0	0	0	0	0
70-74	0	0	0	0	0	0	0	0
75 up	0	0	0	0	0	0	0	0
Not Stated	0	0	0	0	0	0	0	0
TOTALS	0	0	0	0	0	0	0	0
SUM BY RACE	0		0		0		0	

Table 13-C-8
ALL MEDICARE PERSONS DISCHARGED FROM HOSPITALS IN U.S., 1977
OTHER HEART DISEASE SPECIFIED AS RHEUMATIC
ICDA-8-REV. 398.0

<u>AGE</u>	<u>ALL RACES</u>		<u>WHITE</u>		<u>OTHER ONLY</u>		<u>BLACK ONLY</u>	
	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>
0-4	0	0	0	0	0	0	0	0
5-9	0	0	0	0	0	0	0	0
10-14	0	0	0	0	0	0	0	0
15-19	0	0	0	0	0	0	0	0
20-24	5	0	5	0	0	0	0	0
25-29	15	10	15	10	0	0	0	0
30-34	15	15	15	15	0	0	0	0
35-39	50	50	45	40	0	0	5	10
40-44	40	60	35	45	5	0	0	15
45-49	115	95	95	80	0	5	20	10
50-54	150	160	140	150	0	5	10	5
55-59	140	330	115	320	15	0	10	10
60-64	200	445	165	395	15	20	20	30
65-69	650	1455	575	1385	40	25	35	45
70-74	375	1035	340	995	10	40	25	0
75 up	325	1150	310	1065	0	45	15	40
Not Stated	0	0	0	0	0	0	0	0
TOTALS	2080	4805	1855	4500	85	140	140	165
SUM BY RACE	6885		6355		225		305	

Table 13-C-9
ALL MEDICARE PERSONS DISCHARGED FROM HOSPITALS IN U.S., 1977
CHRONIC ISCHEMIC HEART DISEASE (WITH HYPERTENSIVE DISEASE)
ICDA-8-REV. 412.0

AGE	ALL RACES		WHITE		OTHER ONLY		BLACK ONLY	
	MALE	FEMALE	MALE	FEMALE	MALE	FEMALE	MALE	FEMALE
0-4	0	0	0	0	0	0	0	0
5-9	0	0	0	0	0	0	0	0
10-14	0	0	0	0	0	0	0	0
15-19	0	5	0	5	0	0	0	0
20-24	10	0	10	0	0	0	0	0
25-29	15	5	10	0	0	0	5	5
30-34	40	10	30	5	0	0	10	5
35-39	90	25	55	15	5	0	30	10
40-44	200	65	130	50	0	0	70	15
45-49	425	155	300	85	10	0	115	70
50-54	775	630	635	385	0	5	140	240
55-59	1480	1220	1160	835	35	20	285	365
60-64	2330	1830	1835	1310	105	50	390	470
65-69	9060	12245	7440	10010	425	560	1195	1675
70-74	8340	13410	7015	11445	235	360	1090	1605
75 up	12245	32325	10360	28070	380	920	1505	3335
Not Stated	0	0	0	0	0	0	0	0
TOTALS	35010	61925	28980	52215	1195	1915	4835	7795
SUM BY RACE	96935		81195		3110		12630	

Table 13-C-10
ALL MEDICARE PERSONS DISCHARGED FROM HOSPITALS IN U.S., 1977
CHRONIC ISCHEMIC HEART DISEASE WITHOUT MENTION OF HYPERTENSION
ICDA-8-REV. 412.9

<u>AGE</u>	<u>ALL RACES</u>		<u>WHITE</u>		<u>OTHER ONLY</u>		<u>BLACK ONLY</u>	
	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>
0-4	0	0	0	0	0	0	0	0
5-9	0	0	0	0	0	0	0	0
10-14	0	0	0	0	0	0	0	0
15-19	5	0	0	0	0	0	5	0
20-24	15	5	5	5	0	0	10	0
25-29	45	25	45	15	0	0	0	10
30-34	145	30	140	30	0	0	5	0
35-39	670	85	570	70	10	0	90	15
40-44	1780	325	1625	240	20	5	135	80
45-49	3865	840	3545	690	75	10	245	140
50-54	7445	2240	6935	2020	90	20	420	200
55-59	11875	4285	10900	3730	340	80	635	475
60-64	17655	7990	16220	7145	675	100	760	745
65-69	68485	48485	62720	43800	2725	1740	3040	2945
70-74	61390	55855	56415	51130	1635	1480	3340	3245
75 up	120695	173400	111935	158670	2630	5270	6130	9460
Not Stated	0	0	0	0	0	0	0	0
TOTALS	294070	293565	271055	267545	8200	8705	14815	17315
SUM BY RACE	587635		538600		16905		32130	

Table 13-C-11
ALL MEDICARE PERSONS DISCHARGED FROM HOSPITALS IN U.S., 1977
ACUTE MYOCARDITIS
ICDA-8-REV. 422.0

<u>AGE</u>	<u>ALL RACES</u>		<u>WHITE</u>		<u>OTHER ONLY</u>		<u>BLACK ONLY</u>	
	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>
0-4	0	0	0	0	0	0	0	0
5-9	0	0	0	0	0	0	0	0
10-14	0	0	0	0	0	0	0	0
15-19	0	0	0	0	0	0	0	0
20-24	0	0	0	0	0	0	0	0
25-29	5	0	0	0	0	0	5	0
30-34	5	0	5	0	0	0	0	0
35-39	0	0	0	0	0	0	0	0
40-44	0	0	0	0	0	0	0	0
45-49	0	0	0	0	0	0	0	0
50-54	0	0	0	0	0	0	0	0
55-59	10	0	10	0	0	0	0	0
60-64	5	0	5	0	0	0	0	0
65-69	20	40	15	35	0	0	5	5
70-74	65	45	50	40	15	0	0	5
75 up	40	20	30	20	0	0	10	0
Not Stated	0	0	0	0	0	0	0	0
TOTALS	150	105	115	95	15	0	20	10
SUM BY RACE	255		210		15		30	

Table 13-C-12
ALL MEDICARE PERSONS DISCHARGED FROM HOSPITALS IN U.S., 1977
CHRONIC DISEASE OF ENDOCARDIUM (OF AORTIC VALVE, NONRHEUMATIC)
ICDA-8-REV. 424.1

<u>AGE</u>	<u>ALL RACES</u>		<u>WHITE</u>		<u>OTHER ONLY</u>		<u>BLACK ONLY</u>	
	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>
0-4	0	0	0	0	0	0	0	0
5-9	0	0	0	0	0	0	0	0
10-14	0	0	0	0	0	0	0	0
15-19	0	0	0	0	0	0	0	0
20-24	0	0	0	0	0	0	0	0
25-29	0	0	0	0	0	0	0	0
30-34	0	0	0	0	0	0	0	0
35-39	0	0	0	0	0	0	0	0
40-44	0	0	0	0	0	0	0	0
45-49	0	0	0	0	0	0	0	0
50-54	0	0	0	0	0	0	0	0
55-59	0	0	0	0	0	0	0	0
60-64	0	0	0	0	0	0	0	0
65-69	25	5	20	5	5	0	0	0
70-74	20	10	20	10	0	0	0	0
75 up	20	5	20	5	0	0	0	0
Not Stated	0	0	0	0	0	0	0	0
TOTALS	65	20	60	20	5	0	0	0
SUM BY RACE	85		80		5		0	

Table 13-C-13
ALL MEDICARE PERSONS DISCHARGED FROM HOSPITALS IN U.S., 1977
CARDIOMYOPATHY
ICDA-8-REV. 425.0

AGE	ALL RACES		WHITE		OTHER ONLY		BLACK ONLY	
	MALE	FEMALE	MALE	FEMALE	MALE	FEMALE	MALE	FEMALE
0-4	0	0	0	0	0	0	0	0
5-9	0	0	0	0	0	0	0	0
10-14	0	0	0	0	0	0	0	0
15-19	0	0	0	0	0	0	0	0
20-24	10	0	10	0	0	0	0	0
25-29	5	10	0	10	0	0	5	0
30-34	55	10	35	10	5	0	15	0
35-39	60	5	15	0	0	0	45	5
40-44	145	55	85	15	0	0	60	40
45-49	170	30	155	30	0	0	15	0
50-54	235	95	205	65	10	0	20	30
55-59	280	75	220	70	5	5	55	0
60-64	370	195	295	115	5	5	70	75
65-69	1040	665	895	560	30	15	115	90
70-74	510	420	435	400	25	0	50	20
75 up	470	550	410	465	25	15	35	70
Not Stated	0	0	0	0	0	0	0	0
TOTALS	3350	2110	2760	1740	105	40	485	330
SUM BY RACE	5460		4500		145		815	

Table 13-C-14
ALL MEDICARE PERSONS DISCHARGED FROM HOSPITALS IN U.S., 1977
CONGESTIVE HEART FAILURE
ICDA-8-REV. 427.0

<u>AGE</u>	<u>ALL RACES</u>		<u>WHITE</u>		<u>OTHER ONLY</u>		<u>BLACK ONLY</u>	
	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>
0-4	0	0	0	0	0	0	0	0
5-9	0	0	0	0	0	0	0	0
10-14	5	0	5	0	0	0	0	0
15-19	15	5	10	5	0	0	5	0
20-24	35	80	25	65	0	5	10	10
25-29	65	60	35	40	10	0	20	20
30-34	105	55	70	50	10	0	25	5
35-39	225	65	150	55	10	0	65	10
40-44	220	215	180	150	15	10	25	55
45-49	695	200	580	145	5	0	110	55
50-54	1340	560	1055	395	65	15	220	150
55-59	2360	1230	1835	935	95	15	430	280
60-64	4085	2200	3345	1765	120	60	620	375
65-69	15010	12450	12735	10410	740	505	1535	1535
70-74	18075	15825	15730	13700	570	535	1775	1590
75 up	43435	58655	38960	51810	1160	2035	3315	4810
Not Stated	0	0	0	0	0	0	0	0
TOTALS	85670	91600	74715	79525	2800	3180	8155	8895
SUM BY RACE	177270		154240		5980		17050	

Table 13-C-15
ALL MEDICARE PERSONS DISCHARGED FROM HOSPITALS IN U.S., 1977
LEFT VENTRICULAR FAILURE
ICDA-8-REV. 427.1

<u>AGE</u>	<u>ALL RACES</u>		<u>WHITE</u>		<u>OTHER ONLY</u>		<u>BLACK ONLY</u>	
	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>
0-4	0	0	0	0	0	0	0	0
5-9	0	0	0	0	0	0	0	0
10-14	0	0	0	0	0	0	0	0
15-19	0	0	0	0	0	0	0	0
20-24	0	0	0	0	0	0	0	0
25-29	0	0	0	0	0	0	0	0
30-34	0	0	0	0	0	0	0	0
35-39	0	0	0	0	0	0	0	0
40-44	5	5	0	5	5	0	0	0
45-49	5	0	5	0	0	0	0	0
50-54	35	20	35	15	0	0	0	5
55-59	15	25	15	25	0	0	0	0
60-64	55	35	55	20	0	5	0	10
65-69	255	240	225	215	0	5	30	20
70-74	380	270	325	220	5	25	50	25
75 up	585	760	525	690	35	20	25	50
Not Stated	0	0	0	0	0	0	0	0
TOTALS	1335	1355	1185	1190	45	55	105	110
SUM BY RACE	2690		2375		100		215	

Table 13-C-16
ALL MEDICARE PERSONS DISCHARGED FROM HOSPITALS IN U.S., 1977
OTHER MYOCARDIAL INSUFFICIENCY
ICDA-8-REV. 428.0

	<u>ALL RACES</u>		<u>WHITE</u>		<u>OTHER ONLY</u>		<u>BLACK ONLY</u>	
<u>AGE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>
0-4	0	0	0	0	0	0	0	0
5-9	0	0	0	0	0	0	0	0
10-14	0	0	0	0	0	0	0	0
15-19	0	0	0	0	0	0	0	0
20-24	0	0	0	0	0	0	0	0
25-29	5	0	5	0	0	0	0	0
30-34	10	5	10	5	0	0	0	0
35-39	30	5	30	0	0	0	0	5
40-44	15	5	15	0	0	0	0	5
45-49	25	0	25	0	0	0	0	0
50-54	40	15	35	10	0	0	5	5
55-59	85	45	75	35	0	0	10	10
60-64	175	95	145	70	15	0	15	25
65-69	610	565	570	505	10	5	30	55
70-74	475	625	405	575	5	10	65	40
75 up	1170	1635	1040	1440	20	45	110	150
Not Stated	0	0	0	0	0	0	0	0
TOTALS	2640	2995	2355	2640	50	60	235	295
SUM BY RACE	5635		4995		110		530	

Table 13-C-17
ALL MEDICARE PERSONS DISCHARGED FROM HOSPITALS IN U.S., 1977
ILL-DEFINED HEART DISEASE (OTHER AND UNSPECIFIED)
ICDA-8-REV. 429.9

AGE	ALL RACES		WHITE		OTHER ONLY		BLACK ONLY	
	MALE	FEMALE	MALE	FEMALE	MALE	FEMALE	MALE	FEMALE
0-4	0	0	0	0	0	0	0	0
5-9	0	0	0	0	0	0	0	0
10-14	0	0	0	0	0	0	0	0
15-19	0	0	0	0	0	0	0	0
20-24	5	20	0	15	0	5	5	0
25-29	10	10	10	10	0	0	0	0
30-34	15	25	10	10	0	0	5	15
35-39	50	20	30	20	0	0	20	0
40-44	90	40	75	35	0	0	15	5
45-49	160	65	110	45	0	0	50	20
50-54	300	120	200	100	10	5	90	15
55-59	450	275	360	220	10	0	80	55
60-64	770	590	640	420	10	10	120	160
65-69	2825	2705	2430	2255	65	60	330	390
70-74	3045	2895	2565	2480	105	45	375	370
75 up	6430	8560	5695	7425	70	275	665	860
Not Stated	0	0	0	0	0	0	0	0
TOTALS	14150	15325	12125	13035	270	400	1755	1890
SUM BY RACE	29475		25160		670		3645	

Table 13-C-18
ALL MEDICARE PERSONS DISCHARGED FROM HOSPITALS IN U.S., 1977
SUMMARY ALL AGES AND ALL CONDITIONS
SELECTED CONDITIONS FOR WHICH HEART TRANSPLANTATION IS INDICATED

<u>AGE</u>	<u>ALL RACES</u>		<u>WHITE</u>		<u>OTHER ONLY</u>		<u>BLACK ONLY</u>	
	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>
0-4	0	0	0	0	0	0	0	0
5-9	0	0	0	0	0	0	0	0
10-14	5	0	5	0	0	0	0	0
15-19	25	10	15	10	0	0	10	0
20-24	95	120	65	95	5	10	25	15
25-29	240	155	170	110	10	5	60	40
30-34	430	180	345	155	15	0	70	25
35-39	1200	335	920	280	25	0	255	55
40-44	2590	920	2210	670	60	15	320	235
45-49	5730	1650	5055	1305	90	15	585	330
50-54	10600	4140	9485	3405	185	50	930	685
55-59	17240	8180	15130	6830	535	120	1575	1230
60-64	26330	14205	23330	11980	965	280	2035	1945
65-69	101545	82990	90840	72995	4200	3060	6505	6935
70-74	95105	93180	85530	83565	2655	2570	6920	7045
75 up	188360	281800	171960	254055	4405	8735	11995	19010
Not Stated	0	0	0	0	0	0	0	0
TOTALS	449495	487865	405060	435455	13150	14860	31285	37550
SUM BY RACE	937360		840515		28010		68835	

Table 13-C-19
ALL MEDICARE PERSONS DISCHARGED FROM HOSPITALS IN U.S., 1977
AGES 5-54 ONLY
SELECTED CONDITIONS FOR WHICH HEART TRANSPLANTATION IS INDICATED

<u>AGE</u>	<u>ALL RACES</u>		<u>WHITE</u>		<u>OTHER ONLY</u>		<u>BLACK ONLY</u>	
	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>
0-4								
5-9	0	0	0	0	0	0	0	0
10-14	5	0	5	0	0	0	0	0
15-19	25	10	15	10	0	0	10	0
20-24	95	120	65	95	5	10	25	15
25-29	240	155	170	110	10	5	60	40
30-34	430	180	345	155	15	0	70	25
35-39	1200	335	920	280	25	0	255	55
40-44	2590	920	2210	670	60	15	320	235
45-49	5730	1650	5055	1305	90	15	585	330
50-54	10600	4140	9485	3405	185	50	930	685
55-59								
60-64								
65-69								
70-74								
75 up								
Not Stated	0	0	0	0	0	0	0	0
TOTALS	20915	7510	18270	6030	390	95	2255	1385
SUM BY RACE	28425		24300		485		3640	

Table 13-C-20
ALL MEDICARE PERSONS DISCHARGED FROM HOSPITALS IN U.S., 1977
AGES 10-54 ONLY
SELECTED CONDITIONS FOR WHICH HEART TRANSPLANTATION IS INDICATED

<u>AGE</u>	<u>ALL RACES</u>		<u>WHITE</u>		<u>OTHER ONLY</u>		<u>BLACK ONLY</u>	
	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>
0-4								
5-9								
10-14	5	0	5	0	0	0	0	0
15-19	25	10	15	10	0	0	10	0
20-24	95	120	65	95	5	10	25	15
25-29	240	155	170	110	10	5	60	40
30-34	430	180	345	155	15	0	70	25
35-39	1200	335	920	280	25	0	255	55
40-44	2590	920	2210	670	60	15	320	235
45-49	5730	1650	5055	1305	90	15	585	330
50-54	10600	4140	9485	3405	185	50	930	685
55-59								
60-64								
65-69								
70-74								
75 up								
Not Stated	0	0	0	0	0	0	0	0
TOTALS	20915	7510	18270	6030	390	95	2255	1385
SUM BY RACE	28425		24300		485		3640	

Table 13-C-21
ALL MEDICARE PERSONS DISCHARGED FROM HOSPITALS IN U.S., 1977
AGES 5-49 ONLY
SELECTED CONDITIONS FOR WHICH HEART TRANSPLANTATION IS INDICATED

<u>AGE</u>	<u>ALL RACES</u>		<u>WHITE</u>		<u>OTHER ONLY</u>		<u>BLACK ONLY</u>	
	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>
0-4								
5-9	0	0	0	0	0	0	0	0
10-14	5	0	5	0	0	0	0	0
15-19	25	10	15	10	0	0	10	0
20-24	95	120	65	95	5	10	25	15
25-29	240	155	170	110	10	5	60	40
30-34	430	180	345	155	15	0	70	25
35-39	1200	335	920	280	25	0	255	55
40-44	2590	920	2210	670	60	15	320	235
45-49	5730	1650	5055	1305	90	15	585	330
50-54								
55-59								
60-64								
65-69								
70-74								
75 up								
Not Stated	0	0	0	0	0	0	0	0
TOTALS	10315	3370	8785	2625	205	45	1325	700
SUM BY RACE	13685		11410		250		2025	

Table 13-C-22
ALL MEDICARE PERSONS DISCHARGED FROM HOSPITALS IN U.S., 1977
AGES 10-49 ONLY
SELECTED CONDITIONS FOR WHICH HEART TRANSPLANTATION IS INDICATED

<u>AGE</u>	<u>ALL RACES</u>		<u>WHITE</u>		<u>OTHER ONLY</u>		<u>BLACK ONLY</u>	
	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>
0-4								
5-9								
10-14	5	0	5	0	0	0	0	0
15-19	25	10	15	10	0	0	10	0
20-24	95	120	65	95	5	10	25	15
25-29	240	155	170	110	10	5	60	40
30-34	430	180	345	155	15	0	70	25
35-39	1200	335	920	280	25	0	255	55
40-44	2590	920	2210	670	60	15	320	235
45-49	5730	1650	5055	1305	90	15	585	330
50-54								
55-59								
60-64								
65-69								
70-74								
75 up								
Not Stated	0	0	0	0	0	0	0	0
TOTALS	10315	3370	8785	2625	205	45	1325	700
SUM BY RACE	13685		11410		250		2025	

APPENDIX 13-D

DETAILED MEDICARE BENEFICIARIES TABLES, 1976



Table 13-D-1
 ALL MEDICARE PERSONS DISCHARGED FROM HOSPITALS IN U.S., 1976
 MALIGNANT NEOPLASM OF THE TRUNK
 ICDA-8-REV. 171.1

<u>AGE</u>	<u>ALL RACES</u>		<u>WHITE</u>		<u>OTHER ONLY</u>		<u>BLACK ONLY</u>	
	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>
0-4								
5-9								
10-14								
15-19								
20-24								
25-29								
30-34								
35-39			FILE NOT ABSTRACTED					
40-44								
45-49								
50-54								
55-59								
60-64								
65-69								
70-74								
75 up								
Not Stated								
TOTALS								
SUM BY RACE								

Table 13-D-2
ALL MEDICARE PERSONS DISCHARGED FROM HOSPITALS IN U.S., 1976
DISEASES OF THE MITRAL VALVE SPECIFIED AS RHEUMATIC
ICDA-8-REV. 394.0

AGE	ALL RACES		WHITE		OTHER ONLY		BLACK ONLY	
	MALE	FEMALE	MALE	FEMALE	MALE	FEMALE	MALE	FEMALE
0-4	0	0	0	0	0	0	0	0
5-9	0	0	0	0	0	0	0	0
10-14	0	0	0	0	0	0	0	0
15-19	0	0	0	0	0	0	0	0
20-24	0	5	0	0	0	0	0	5
25-29	0	0	0	0	0	0	0	0
30-34	10	0	10	0	0	0	0	0
35-39	15	30	15	25	0	0	0	5
40-44	15	40	15	40	0	0	0	0
45-49	35	65	35	60	0	0	0	5
50-54	40	105	40	85	0	0	0	20
55-59	60	235	60	220	0	5	0	10
60-64	60	280	55	265	0	5	5	10
65-69	295	965	260	915	10	35	25	15
70-74	220	600	195	570	5	10	20	20
75 up	145	615	145	595	0	10	0	10
Not Stated	0	0	0	0	0	0	0	0
TOTALS	895	2940	830	2775	15	65	50	100
SUM BY RACE	3835		3605		80		150	

Table 13-D-3
ALL MEDICARE PERSONS DISCHARGED FROM HOSPITALS IN U.S., 1976
DISEASES OF THE MITRAL VALVE NOT SPECIFIED AS RHEUMATIC
ICDA-8-REV. 394.9

<u>AGE</u>	<u>ALL RACES</u>		<u>WHITE</u>		<u>OTHER ONLY</u>		<u>BLACK ONLY</u>	
	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>
0-4	0	0	0	0	0	0	0	0
5-9	0	0	0	0	0	0	0	0
10-14	0	0	0	0	0	0	0	0
15-19	0	0	0	0	0	0	0	0
20-24	10	0	10	0	0	0	0	0
25-29	5	5	5	5	0	0	0	0
30-34	15	5	10	5	0	0	5	0
35-39	10	40	10	35	0	0	0	5
40-44	50	30	45	30	0	0	5	0
45-49	80	135	70	130	0	0	10	5
50-54	60	140	55	130	0	0	5	10
55-59	100	230	85	215	5	0	10	15
60-64	105	405	125	375	15	10	10	20
65-69	860	1740	825	1580	30	55	5	105
70-74	690	965	640	900	10	10	40	55
75 up	740	1400	690	1265	20	55	30	80
Not Stated	0	0	0	0	0	0	0	0
TOTALS	2770	5095	2570	4670	80	130	120	295
SUM BY RACE	7865		7240		210		415	

Table 13-D-4
ALL MEDICARE PERSONS DISCHARGED FROM HOSPITALS ALIVE IN U.S., 1976
DISEASES OF THE AORTIC VALVE SPECIFIED AS RHEUMATIC
ICDA-8-REV. 395.0

<u>AGE</u>	<u>ALL RACES</u>		<u>WHITE</u>		<u>OTHER ONLY</u>		<u>BLACK ONLY</u>	
	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>
0-4	0	0	0	0	0	0	0	0
5-9	0	0	0	0	0	0	0	0
10-14	0	0	0	0	0	0	0	0
15-19	0	0	0	0	0	0	0	0
20-24	0	0	0	0	0	0	0	0
25-29	0	0	0	0	0	0	0	0
30-34	0	0	0	0	0	0	0	0
35-39	10	0	10	0	0	0	0	0
40-44	10	5	10	5	0	0	0	0
45-49	5	5	5	5	0	0	0	0
50-54	10	25	0	25	0	0	10	0
55-59	40	25	40	25	0	0	0	0
60-64	25	20	20	10	5	5	0	5
65-69	135	125	130	120	5	5	0	0
70-74	115	135	90	130	15	0	10	5
75 up	75	165	65	150	10	5	0	10
Not Stated	0	0	0	0	0	0	0	0
TOTALS	425	505	370	470	35	15	20	20
SUM BY RACE	930		840		50		40	

Table 13-D-5
ALL MEDICARE PERSONS DISCHARGED FROM HOSPITALS ALIVE IN U.S., 1976
DISEASES OF THE AORTIC VALVE NOT SPECIFIED AS RHEUMATIC
ICDA-8-REV. 395.9

<u>AGE</u>	<u>ALL RACES</u>		<u>WHITE</u>		<u>OTHER ONLY</u>		<u>BLACK ONLY</u>	
	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>
0-4	0	0	0	0	0	0	0	0
5-9	0	0	0	0	0	0	0	0
10-14	0	0	0	0	0	0	0	0
15-19	0	5	0	0	0	5	0	0
20-24	15	0	15	0	0	0	0	0
25-29	15	10	10	10	0	0	5	0
30-34	5	15	5	15	0	0	0	0
35-39	10	5	10	5	0	0	0	0
40-44	25	30	25	25	0	0	0	5
45-49	55	40	35	35	0	0	20	5
50-54	115	45	85	40	5	0	25	5
55-59	275	115	240	100	5	5	30	10
60-64	355	125	305	120	5	0	45	5
65-69	1985	1410	1785	1210	75	80	125	120
70-74	1595	1075	1450	975	40	25	105	75
75 up	1450	2365	1280	2175	50	70	120	120
Not Stated	0	0	0	0	0	0	0	0
TOTALS	5900	5240	5245	4710	180	185	475	345
SUM BY RACE	11140		9955		365		820	

Table 13-D-6
ALL MEDICARE PERSONS DISCHARGED FROM HOSPITALS IN U.S., 1976
DISEASES OF THE MITRAL AND AORTIC VALVE SPECIFIED AS RHEUMATIC
ICDA-8-REV. 396.0

<u>AGE</u>	<u>ALL RACES</u>		<u>WHITE</u>		<u>OTHER ONLY</u>		<u>BLACK ONLY</u>	
	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>
0-4	0	0	0	0	0	0	0	0
5-9	0	0	0	0	0	0	0	0
10-14	0	0	0	0	0	0	0	0
15-19	0	0	0	0	0	0	0	0
20-24	0	0	0	0	0	0	0	0
25-29	5	5	5	5	0	0	0	0
30-34	0	0	0	0	0	0	0	0
35-39	15	25	15	20	0	0	0	5
40-44	10	20	10	20	0	0	0	0
45-49	5	35	5	35	0	0	0	0
50-54	15	25	15	15	0	0	0	10
55-59	25	40	25	40	0	0	0	0
60-64	25	45	20	40	0	0	5	5
65-69	85	250	70	230	5	15	10	5
70-74	65	120	65	105	0	15	0	0
75 up	45	180	45	170	0	0	0	10
Not Stated	0	0	0	0	0	0	0	0
TOTALS	295	745	275	680	5	30	15	35
SUM BY RACE	1040		955		35		50	

Table 13-D-7
ALL MEDICARE PERSONS DISCHARGED FROM HOSPITALS IN U.S., 1976
DISEASES OF THE MITRAL AND AORTIC VALVES NOT SPECIFIED AS RHEUMATIC
ICDA-8-REV. 396.9

AGE	ALL RACES		WHITE		OTHER ONLY		BLACK ONLY	
	MALE	FEMALE	MALE	FEMALE	MALE	FEMALE	MALE	FEMALE
0-4	0	0	0	0	0	0	0	0
5-9	0	0	0	0	0	0	0	0
10-14	0	0	0	0	0	0	0	0
15-19	0	0	0	0	0	0	0	0
20-24	0	0	0	0	0	0	0	0
25-29	0	0	0	0	0	0	0	0
30-34	0	0	0	0	0	0	0	0
35-39	0	0	0	0	0	0	0	0
40-44	0	0	0	0	0	0	0	0
45-49	0	0	0	0	0	0	0	0
50-54	0	0	0	0	0	0	0	0
55-59	0	0	0	0	0	0	0	0
60-64	0	0	0	0	0	0	0	0
65-69	0	0	0	0	0	0	0	0
70-74	0	0	0	0	0	0	0	0
75 up	0	0	0	0	0	0	0	0
Not Stated	0	0	0	0	0	0	0	0
TOTALS	0	0	0	0	0	0	0	0
SUM BY RACE	0		0		0		0	

Table 13-D-8
ALL MEDICARE PERSONS DISCHARGED FROM HOSPITALS IN U.S., 1976
OTHER HEART DISEASE SPECIFIED AS RHEUMATIC
ICDA-8-REV. 398.0

<u>AGE</u>	<u>ALL RACES</u>		<u>WHITE</u>		<u>OTHER ONLY</u>		<u>BLACK ONLY</u>	
	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>
0-4	0	0	0	0	0	0	0	0
5-9	0	0	0	0	0	0	0	0
10-14	0	0	0	0	0	0	0	0
15-19	0	0	0	0	0	0	0	0
20-24	5	0	0	0	0	0	5	0
25-29	5	5	5	0	0	0	0	5
30-34	15	5	10	0	0	0	5	5
35-39	25	50	25	40	0	0	0	10
40-44	25	50	25	50	0	0	0	0
45-49	95	135	75	125	5	0	15	10
50-54	125	205	115	190	0	0	10	15
55-59	200	315	165	290	5	0	30	25
60-64	190	425	150	395	10	5	30	25
65-69	555	1220	540	1120	10	70	5	30
70-74	340	1005	320	970	15	30	5	5
75 up	350	1080	335	1010	5	25	10	45
Not Stated	0	0	0	0	0	0	0	0
TOTALS	1930	4495	1765	4190	50	130	115	175
SUM BY RACE	6425		5955		180		290	

Table 13-D-9
ALL MEDICARE PERSONS DISCHARGED FROM HOSPITALS IN U.S., 1976
CHRONIC ISCHEMIC HEART DISEASE (WITH HYPERTENSIVE DISEASE)
ICDA-8-REV. 412.0

	<u>ALL RACES</u>		<u>WHITE</u>		<u>OTHER ONLY</u>		<u>BLACK ONLY</u>	
<u>AGE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>
0-4	0	0	0	0	0	0	0	0
5-9	0	0	0	0	0	0	0	0
10-14	5	0	5	0	0	0	0	0
15-19	5	0	5	0	0	0	0	0
20-24	0	0	0	0	0	0	0	0
25-29	0	5	0	0	0	0	0	5
30-34	35	10	20	5	0	0	15	5
35-39	85	30	65	15	0	0	20	15
40-44	215	120	155	90	10	0	50	30
45-49	490	270	345	150	5	0	140	120
50-54	1165	705	930	465	20	0	215	240
55-59	1810	1345	1420	930	85	30	305	385
60-64	3100	2325	2535	1810	90	75	475	440
65-69	12880	16590	10815	13700	495	690	1570	2200
70-74	11475	18335	9665	15745	400	485	1410	2105
75 up	16350	43080	14300	37890	430	1260	1620	3930
Not Stated	0	0	0	0	0	0	0	0
TOTALS	47615	82815	40260	70800	1535	2540	5820	9475
SUM BY RACE	130430		111060		4075		15295	

Table 13-D-10
ALL MEDICARE PERSONS DISCHARGED FROM HOSPITALS IN U.S., 1976
CHRONIC ISCHEMIC HEART DISEASE WITHOUT MENTION OF HYPERTENSION
ICDA-8-REV. 412.9

AGE	ALL RACES		WHITE		OTHER ONLY		BLACK ONLY	
	MALE	FEMALE	MALE	FEMALE	MALE	FEMALE	MALE	FEMALE
0-4	0	0	0	0	0	0	0	0
5-9	0	0	0	0	0	0	0	0
10-14	0	0	0	0	0	0	0	0
15-19	0	0	0	0	0	0	0	0
20-24	25	0	20	0	0	0	5	0
25-29	35	5	25	0	0	0	10	5
30-34	105	35	95	20	0	0	10	15
35-39	500	45	390	40	0	0	110	5
40-44	1625	270	1535	230	20	0	70	40
45-49	3930	725	3680	650	35	0	215	75
50-54	7110	2060	6675	1875	85	5	350	180
55-59	10840	4635	9925	4170	360	55	555	410
60-64	16925	7975	15615	7200	485	145	825	630
65-69	68070	48160	62780	43235	2570	1765	2720	3160
70-74	62890	58075	58105	53630	1700	1345	3085	3100
75 up	126645	177380	117715	162195	2595	5815	6335	9370
Not Stated	0	0	0	0	0	0	0	0
TOTALS	298700	299365	276560	273245	7850	9130	14290	16990
SUM BY RACE	598065		549805		16980		31280	

Table 13-D-11
ALL MEDICARE PERSONS DISCHARGED FROM HOSPITALS IN U.S., 1976
ACUTE MYOCARDITIS
ICDA-8-REV. 422.0

AGE	ALL RACES		WHITE		OTHER ONLY		BLACK ONLY	
	MALE	FEMALE	MALE	FEMALE	MALE	FEMALE	MALE	FEMALE
0-4	0	0	0	0	0	0	0	0
5-9	0	0	0	0	0	0	0	0
10-14	0	0	0	0	0	0	0	0
15-19	0	0	0	0	0	0	0	0
20-24	0	0	0	0	0	0	0	0
25-29	0	0	0	0	0	0	0	0
30-34	0	0	0	0	0	0	0	0
35-39	0	5	0	5	0	0	0	0
40-44	10	0	10	0	0	0	0	0
45-49	5	0	5	0	0	0	0	0
50-54	0	0	0	0	0	0	0	0
55-59	5	0	5	0	0	0	0	0
60-64	5	5	5	5	0	0	0	0
65-69	35	5	30	5	0	0	5	0
70-74	35	25	30	25	0	0	5	0
75 up	5	25	5	25	0	0	0	0
Not Stated	0	0	0	0	0	0	0	0
TOTALS	100	65	90	65	0	0	10	0
SUM BY RACE	165		155		0		10	

Table 13-D-12
ALL MEDICARE PERSONS DISCHARGED FROM HOSPITALS IN U.S., 1976
CHRONIC DISEASE OF ENDOCARDIUM (OF AORTIC VALVE, NONRHEUMATIC)
ICDA-8-REV. 424.1

	<u>ALL RACES</u>		<u>WHITE</u>		<u>OTHER ONLY</u>		<u>BLACK ONLY</u>	
<u>AGE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>
0-4	0	0	0	0	0	0	0	0
5-9	0	0	0	0	0	0	0	0
10-14	0	0	0	0	0	0	0	0
15-19	0	0	0	0	0	0	0	0
20-24	0	0	0	0	0	0	0	0
25-29	0	0	0	0	0	0	0	0
30-34	0	0	0	0	0	0	0	0
35-39	0	0	0	0	0	0	0	0
40-44	0	0	0	0	0	0	0	0
45-49	0	0	0	0	0	0	0	0
50-54	0	0	0	0	0	0	0	0
55-59	5	0	0	0	0	0	5	0
60-64	5	0	5	0	0	0	0	0
65-69	10	30	5	25	5	0	0	5
70-74	35	10	35	10	0	0	0	0
75 up	15	20	15	20	0	0	0	0
Not Stated	0	0	0	0	0	0	0	0
TOTALS	70	60	60	55	5	0	5	5
SUM BY RACE	130		115		5		10	

Table 13-D-13
ALL MEDICARE PERSONS DISCHARGED FROM HOSPITALS IN U.S., 1976
CARDIOMYOPATHY
ICDA-8-REV. 425.0

<u>AGE</u>	<u>ALL RACES</u>		<u>WHITE</u>		<u>OTHER ONLY</u>		<u>BLACK ONLY</u>	
	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>
0-4	0	0	0	0	0	0	0	0
5-9	0	0	0	0	0	0	0	0
10-14	0	0	0	0	0	0	0	0
15-19	0	0	0	0	0	0	0	0
20-24	5	0	5	0	0	0	0	0
25-29	5	10	5	5	0	5	0	0
30-34	45	0	40	0	0	0	5	0
35-39	30	10	20	0	5	0	5	10
40-44	45	25	45	10	0	0	0	15
45-49	115	75	100	65	0	0	15	10
50-54	160	45	120	30	0	0	40	15
55-59	195	70	165	50	0	10	30	10
60-64	255	175	235	80	0	5	20	90
65-69	775	490	680	415	20	25	75	50
70-74	400	230	345	195	0	15	55	20
75 up	395	400	320	325	10	15	65	60
Not Stated	0	0	0	0	0	0	0	0
TOTALS	2425	1530	2080	1175	35	75	310	280
SUM BY RACE	3955		3255		110		590	

Table 13-D-14
ALL MEDICARE PERSONS DISCHARGED FROM HOSPITALS IN U.S., 1976
CONGESTIVE HEART FAILURE
ICDA-8-REV. 427.0

<u>AGE</u>	<u>ALL RACES</u>		<u>WHITE</u>		<u>OTHER ONLY</u>		<u>BLACK ONLY</u>	
	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>
0-4	0	0	0	0	0	0	0	0
5-9	5	0	5	0	0	0	0	0
10-14	0	0	0	0	0	0	0	0
15-19	5	0	5	0	0	0	0	0
20-24	35	40	30	25	0	5	5	10
25-29	55	20	35	15	0	5	20	0
30-34	115	55	95	40	0	0	20	15
35-39	165	50	110	40	0	0	55	10
40-44	295	75	200	30	10	5	85	40
45-49	495	170	375	120	20	0	100	50
50-54	890	370	710	245	45	10	135	115
55-59	1940	1055	1550	885	60	15	330	155
60-64	3250	1950	2775	1535	55	30	420	385
65-69	13275	9650	11275	8290	570	300	1430	1060
70-74	15655	12740	13525	11050	405	385	1725	1305
75 up	35960	48270	32220	42585	865	1575	2875	4110
Not Stated	0	0	0	0	0	0	0	0
TOTALS	72140	74445	62910	64860	2030	2330	7200	7255
SUM BY RACE	146585		127770		4360		14455	

Table 13-D-15
ALL MEDICARE PERSONS DISCHARGED FROM HOSPITALS IN U.S., 1976
LEFT VENTRICULAR FAILURE
ICDA-8-REV. 427.1

<u>AGE</u>	<u>ALL RACES</u>		<u>WHITE</u>		<u>OTHER ONLY</u>		<u>BLACK ONLY</u>	
	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>
0-4	0	0	0	0	0	0	0	0
5-9	0	0	0	0	0	0	0	0
10-14	0	0	0	0	0	0	0	0
15-19	0	0	0	0	0	0	0	0
20-24	0	0	0	0	0	0	0	0
25-29	0	0	0	0	0	0	0	0
30-34	5	0	5	0	0	0	0	0
35-39	0	0	0	0	0	0	0	0
40-44	0	0	0	0	0	0	0	0
45-49	0	10	0	10	0	0	0	0
50-54	45	10	45	10	0	0	0	0
55-59	40	0	30	0	0	0	10	0
60-64	45	10	45	10	0	0	0	0
65-69	210	150	200	135	0	5	10	10
70-74	220	195	175	165	5	5	40	25
75 up	495	590	455	525	5	20	35	45
Not Stated	0	0	0	0	0	0	0	0
TOTALS	1060	965	955	855	10	30	95	80
SUM BY RACE	2025		1810		40		175	

Table 13-D-16
ALL MEDICARE PERSONS DISCHARGED FROM HOSPITALS IN U.S., 1976
OTHER MYOCARDIAL INSUFFICIENCY
ICDA-8-REV. 428.0

<u>AGE</u>	<u>ALL RACES</u>		<u>WHITE</u>		<u>OTHER ONLY</u>		<u>BLACK ONLY</u>	
	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>
0-4	0	0	0	0	0	0	0	0
5-9	0	0	0	0	0	0	0	0
10-14	0	0	0	0	0	0	0	0
15-19	0	0	0	0	0	0	0	0
20-24	0	0	0	0	0	0	0	0
25-29	10	0	5	0	0	0	5	0
30-34	0	5	0	0	0	0	0	5
35-39	10	5	0	5	5	0	5	0
40-44	15	5	15	5	0	0	0	0
45-49	45	20	35	20	0	0	10	0
50-54	90	40	80	35	0	0	10	5
55-59	135	65	110	40	0	0	25	25
60-64	145	95	125	75	10	0	10	20
65-69	615	490	555	455	10	10	50	25
70-74	560	550	510	490	10	25	40	35
75 up	1260	1705	1205	1480	5	75	50	150
Not Stated	0	0	0	0	0	0	0	0
TOTALS	2885	2980	2640	2605	40	110	205	265
SUM BY RACE	5865		5245		150		470	

Table 13-D-17
ALL MEDICARE PERSONS DISCHARGED FROM HOSPITALS IN U.S., 1976
ILL-DEFINED HEART DISEASE (OTHER AND UNSPECIFIED)
ICDA-8-REV. 429.9

<u>AGE</u>	<u>ALL RACES</u>		<u>WHITE</u>		<u>OTHER ONLY</u>		<u>BLACK ONLY</u>	
	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>
0-4	0	0	0	0	0	0	0	0
5-9	0	0	0	0	0	0	0	0
10-14	0	0	0	0	0	0	0	0
15-19	0	0	0	0	0	0	0	0
20-24	0	5	0	0	0	0	0	5
25-29	0	0	0	0	0	0	0	0
30-34	40	0	30	0	0	0	10	0
35-39	50	10	35	10	0	0	15	0
40-44	75	35	55	30	5	0	15	5
45-49	95	55	60	45	0	0	35	10
50-54	210	80	180	55	0	5	30	20
55-59	245	150	190	110	10	5	45	35
60-64	505	255	410	190	10	0	85	65
65-69	2185	1850	1830	1575	130	110	225	165
70-74	2245	1985	1940	1660	50	45	255	280
75 up	4080	5630	3610	4800	70	175	400	655
Not Stated	0	0	0	0	0	0	0	0
TOTALS	9730	10055	8340	8475	275	340	1115	1240
SUM BY RACE	19785		16815		615		2355	

Table 13-D-18
ALL MEDICARE PERSONS DISCHARGED FROM HOSPITALS IN U.S., 1976
SUMMARY ALL AGES AND ALL CONDITIONS
SELECTED CONDITIONS FOR WHICH HEART TRANSPLANTATION IS INDICATED

<u>AGE</u>	<u>ALL RACES</u>		<u>WHITE</u>		<u>OTHER ONLY</u>		<u>BLACK ONLY</u>	
	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>
0-4	0	0	0	0	0	0	0	0
5-9	5	0	5	0	0	0	0	0
10-14	5	0	5	0	0	0	0	0
15-19	10	5	10	0	0	5	0	0
20-24	95	50	80	25	0	5	15	20
25-29	135	65	95	40	0	10	40	15
30-34	390	130	320	85	0	0	70	45
35-39	925	305	705	240	10	0	210	65
40-44	2415	705	2145	565	45	5	225	135
45-49	5450	1740	4825	1450	65	0	560	290
50-54	10035	3855	9050	3200	155	20	830	635
55-59	15915	8280	14010	7075	530	125	1375	1080
60-64	25040	14090	22425	12110	685	280	1930	1700
65-69	101970	83125	91780	73010	3935	3165	6255	6950
70-74	96540	96045	87090	86620	2655	2395	6795	7030
75 up	188010	282905	172405	255210	4065	9100	115450	18595
Not Stated	0	0	0	0	0	0	0	0
TOTALS	446940	491300	404950	439630	12145	15110	29845	36560
SUM BY RACE	938240		844580		27255		66405	

Table 13-D-19
ALL MEDICARE PERSONS DISCHARGED FROM HOSPITALS IN U.S., 1976
AGES 5-54 ONLY
SELECTED CONDITIONS FOR WHICH HEART TRANSPLANTATION IS INDICATED

<u>AGE</u>	<u>ALL RACES</u>		<u>WHITE</u>		<u>OTHER ONLY</u>		<u>BLACK ONLY</u>	
	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>
0-4								
5-9	5	0	5	0	0	0	0	0
10-14	5	0	5	0	0	0	0	0
15-19	10	5	10	0	0	5	0	0
20-24	95	50	80	25	0	5	15	20
25-29	135	65	95	40	0	10	40	15
30-34	390	130	320	85	0	0	70	45
35-39	925	305	705	240	10	0	210	65
40-44	2415	705	2145	565	45	5	225	135
45-49	5450	1740	4825	1450	65	0	560	290
50-54	10035	3855	9050	3200	155	20	830	635
55-59								
60-64								
65-69								
70-74								
75 up								
Not Stated	0	0	0	0	0	0	0	0
TOTALS	19465	6855	17240	5605	275	45	1950	1205
SUM BY RACE	26320		22845		320		3155	

Table 13-D-20
ALL MEDICARE PERSONS DISCHARGED FROM HOSPITALS IN U.S., 1976
AGES 10-54 ONLY
SELECTED CONDITIONS FOR WHICH HEART TRANSPLANTATION IS INDICATED

<u>AGE</u>	<u>ALL RACES</u>		<u>WHITE</u>		<u>OTHER ONLY</u>		<u>BLACK ONLY</u>	
	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>
0-4								
5-9								
10-14	5	0	5	0	0	0	0	0
15-19	10	5	10	0	0	5	0	0
20-24	95	50	80	25	0	5	15	20
25-29	135	65	95	40	0	10	40	15
30-34	390	130	320	85	0	0	70	45
35-39	925	305	705	240	10	0	210	65
40-44	2415	705	2145	565	45	5	225	135
45-49	5450	1740	4825	1450	65	0	560	290
50-54	10035	3855	9050	3200	155	20	830	635
55-59								
60-64								
65-69								
70-74								
75 up								
Not Stated	0	0	0	0	0	0	0	0
TOTALS	19460	6855	17235	5605	275	45	1950	1205
SUM BY RACE	26315		22840		320		3155	

Table 13-D-21
ALL MEDICARE PERSONS DISCHARGED FROM HOSPITALS IN U.S., 1976
AGES 5-49 ONLY
SELECTED CONDITIONS FOR WHICH HEART TRANSPLANTATION IS INDICATED

<u>AGE</u>	<u>ALL RACES</u>		<u>WHITE</u>		<u>OTHER ONLY</u>		<u>BLACK ONLY</u>	
	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>
0-4								
5-9	5	0	5	0	0	0	0	0
10-14	5	0	5	0	0	0	0	0
15-19	10	5	10	0	0	5	0	0
20-24	95	50	80	25	0	5	15	20
25-29	135	65	95	40	0	10	40	15
30-34	390	130	320	85	0	0	70	45
35-39	925	305	705	240	10	0	210	65
40-44	2415	705	2145	565	45	5	225	135
45-49	5450	1740	4825	1450	65	0	560	290
50-54								
55-59								
60-64								
65-69								
70-74								
75 up								
Not Stated	0	0	0	0	0	0	0	0
TOTALS	9430	3000	8190	2405	120	25	1120	570
SUM BY RACE	12430		10595		145		1690	

Table 13-D-22
ALL MEDICARE PERSONS DISCHARGED FROM HOSPITALS IN U.S., 1976
AGES 10-49 ONLY
SELECTED CONDITIONS FOR WHICH HEART TRANSPLANTATION IS INDICATED

<u>AGE</u>	<u>ALL RACES</u>		<u>WHITE</u>		<u>OTHER ONLY</u>		<u>BLACK ONLY</u>	
	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>
0-4								
5-9								
10-14	5	0	5	0	0	0	0	0
15-19	10	5	10	0	0	5	0	0
20-24	95	50	80	25	0	5	15	20
25-29	135	65	95	40	0	10	40	15
30-34	390	130	320	85	0	0	70	45
35-39	925	305	705	240	10	0	210	65
40-44	2415	705	2145	565	45	5	225	135
45-49	5450	1740	4825	1450	65	0	560	290
50-54								
55-59								
60-64								
65-69								
70-74								
75 up								
Not Stated	0	0	0	0	0	0	0	0
TOTALS	9425	3000	8185	2405	120	25	1120	570
SUM BY RACE	12425		10590		145		1690	

APPENDIX 13-E

DETAILED MEDICARE BENEFICIARIES TABLES, 1975



Table 13-E-1
 ALL MEDICARE PERSONS DISCHARGED FROM HOSPITALS IN U.S., 1975
 MALIGNANT NEOPLASM OF THE TRUNK
 ICDA-8-REV. 171.1

<u>AGE</u>	<u>ALL RACES</u>		<u>WHITE</u>		<u>OTHER ONLY</u>		<u>BLACK ONLY</u>	
	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>
0-4								
5-9								
10-14								
15-19								
20-24								
25-29								
30-34								
35-39			FILE NOT ABSTRACTED					
40-44								
45-49								
50-54								
55-59								
60-64								
65-69								
70-74								
75 up								
Not Stated								
TOTALS								
SUM BY RACE								

Table 13-E-2
ALL MEDICARE PERSONS DISCHARGED FROM HOSPITALS IN U.S., 1975
DISEASES OF THE MITRAL VALVE SPECIFIED AS RHEUMATIC
ICDA-8-REV. 394.0

<u>AGE</u>	<u>ALL RACES</u>		<u>WHITE</u>		<u>OTHER ONLY</u>		<u>BLACK ONLY</u>	
	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>
0-4	0	0	0	0	0	0	0	0
5-9	0	0	0	0	0	0	0	0
10-14	0	0	0	0	0	0	0	0
15-19	0	0	0	0	0	0	0	0
20-24	0	0	0	0	0	0	0	0
25-29	5	0	5	0	0	0	0	0
30-34	10	10	5	10	0	0	5	0
35-39	20	10	20	10	0	0	0	0
40-44	20	40	5	35	5	0	10	5
45-49	40	90	30	80	5	5	5	5
50-54	45	105	45	90	0	0	0	15
55-59	100	215	90	210	5	0	5	5
60-64	90	245	70	230	5	0	15	15
65-69	305	995	300	945	0	25	5	25
70-74	220	580	210	535	5	20	5	25
75 up	180	605	165	575	5	10	10	20
Not Stated	0	0	0	0	0	0	0	0
TOTALS	1035	2895	945	2720	30	60	60	115
SUM BY RACE	3930		3665		90		175	

Table 13-E-3
ALL MEDICARE PERSONS DISCHARGED FROM HOSPITALS IN U.S., 1975
DISEASES OF THE MITRAL VALVE NOT SPECIFIED AS RHEUMATIC
ICDA-8-REV. 394.9

<u>AGE</u>	<u>ALL RACES</u>		<u>WHITE</u>		<u>OTHER ONLY</u>		<u>BLACK ONLY</u>	
	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>
0-4	0	0	0	0	0	0	0	0
5-9	0	0	0	0	0	0	0	0
10-14	0	0	0	0	0	0	0	0
15-19	0	0	0	0	0	0	0	0
20-24	0	0	0	0	0	0	0	0
25-29	5	0	5	0	0	0	0	0
30-34	10	15	5	15	0	0	5	0
35-39	20	40	20	40	0	0	0	0
40-44	15	30	10	25	0	0	5	5
45-49	45	110	40	110	0	0	5	0
50-54	100	130	90	120	5	0	5	10
55-59	130	205	100	195	5	0	25	10
60-64	190	305	180	280	5	0	5	25
65-69	960	1480	870	1370	35	65	55	45
70-74	655	800	585	735	25	35	45	30
75 up	955	1320	910	1185	20	85	25	50
Not Stated	0	0	0	0	0	0	0	0
TOTALS	3085	4435	2815	4075	95	185	175	175
SUM BY RACE	7520		6890		280		350	

Table 13-E-4
ALL MEDICARE PERSONS DISCHARGED FROM HOSPITALS ALIVE IN U.S., 1975
DISEASES OF THE AORTIC VALVE SPECIFIED AS RHEUMATIC
ICDA-8-REV. 395.0

<u>AGE</u>	<u>ALL RACES</u>		<u>WHITE</u>		<u>OTHER ONLY</u>		<u>BLACK ONLY</u>	
	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>
0-4	0	0	0	0	0	0	0	0
5-9	0	0	0	0	0	0	0	0
10-14	0	0	0	0	0	0	0	0
15-19	0	0	0	0	0	0	0	0
20-24	0	0	0	0	0	0	0	0
25-29	0	0	0	0	0	0	0	0
30-34	5	0	5	0	0	0	0	0
35-39	10	10	10	5	0	0	0	5
40-44	0	0	0	0	0	0	0	0
45-49	15	5	10	5	0	0	5	0
50-54	10	25	10	25	0	0	0	0
55-59	35	20	30	20	0	0	5	0
60-64	20	40	15	40	0	0	5	0
65-69	160	145	160	140	0	0	0	5
70-74	95	105	80	105	10	0	5	0
75 up	75	220	75	215	0	0	0	5
Not Stated	0	0	0	0	0	0	0	0
TOTALS	425	570	395	555	10	0	20	15
SUM BY RACE	995		950		10		35	

Table 13-E-5
ALL MEDICARE PERSONS DISCHARGED FROM HOSPITALS ALIVE IN U.S., 1975
DISEASES OF THE AORTIC VALVE NOT SPECIFIED AS RHEUMATIC
ICDA-8-REV. 395.9

<u>AGE</u>	<u>ALL RACES</u>		<u>WHITE</u>		<u>OTHER ONLY</u>		<u>BLACK ONLY</u>	
	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>
0-4	0	0	0	0	0	0	0	0
5-9	0	0	0	0	0	0	0	0
10-14	0	0	0	0	0	0	0	0
15-19	0	0	0	0	0	0	0	0
20-24	10	5	0	5	0	0	10	0
25-29	10	0	10	0	0	0	0	0
30-34	5	5	5	5	0	0	0	0
35-39	20	20	15	0	5	5	0	15
40-44	10	5	5	5	0	0	5	0
45-49	70	30	50	30	5	0	15	0
50-54	115	50	95	45	5	0	15	5
55-59	115	75	90	60	5	0	20	15
60-64	390	130	310	110	15	0	65	20
65-69	1565	1105	1425	1010	80	30	60	65
70-74	1370	845	1205	770	35	5	130	70
75 up	1450	1690	1300	1510	65	55	85	125
Not Stated	0	0	0	0	0	0	0	0
TOTALS	5130	3960	4510	3550	215	95	405	315
SUM BY RACE	9090		8060		310		720	

Table 13-E-6
ALL MEDICARE PERSONS DISCHARGED FROM HOSPITALS IN U.S., 1975
DISEASES OF THE MITRAL AND AORTIC VALVE SPECIFIED AS RHEUMATIC
ICDA-8-REV. 396.0

<u>AGE</u>	<u>ALL RACES</u>		<u>WHITE</u>		<u>OTHER ONLY</u>		<u>BLACK ONLY</u>	
	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>
0-4	0	0	0	0	0	0	0	0
5-9	0	0	0	0	0	0	0	0
10-14	0	0	0	0	0	0	0	0
15-19	0	0	0	0	0	0	0	0
20-24	0	0	0	0	0	0	0	0
25-29	5	0	0	0	0	0	5	0
30-34	0	0	0	0	0	0	0	0
35-39	10	0	10	0	0	0	0	0
40-44	10	0	5	0	5	0	0	0
45-49	20	20	20	20	0	0	0	0
50-54	15	10	15	10	0	0	0	0
55-59	20	45	15	40	0	0	5	5
60-64	55	85	45	85	0	0	10	0
65-69	110	210	85	205	10	0	15	5
70-74	80	140	75	140	5	0	0	0
75 up	105	160	100	155	5	0	0	5
Not Stated	0	0	0	0	0	0	0	0
TOTALS	430	670	370	655	25	0	35	15
SUM BY RACE	1100		1025		25		50	

Table 13-E-7
ALL MEDICARE PERSONS DISCHARGED FROM HOSPITALS IN U.S., 1975
DISEASES OF THE MITRAL AND AORTIC VALVES NOT SPECIFIED AS RHEUMATIC
ICDA-8-REV. 396.9

<u>AGE</u>	<u>ALL RACES</u>		<u>WHITE</u>		<u>OTHER ONLY</u>		<u>BLACK ONLY</u>	
	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>
0-4	0	0	0	0	0	0	0	0
5-9	0	0	0	0	0	0	0	0
10-14	0	0	0	0	0	0	0	0
15-19	0	0	0	0	0	0	0	0
20-24	0	0	0	0	0	0	0	0
25-29	0	0	0	0	0	0	0	0
30-34	0	0	0	0	0	0	0	0
35-39	0	0	0	0	0	0	0	0
40-44	0	0	0	0	0	0	0	0
45-49	0	0	0	0	0	0	0	0
50-54	0	0	0	0	0	0	0	0
55-59	0	0	0	0	0	0	0	0
60-64	0	0	0	0	0	0	0	0
65-69	0	0	0	0	0	0	0	0
70-74	0	0	0	0	0	0	0	0
75 up	0	0	0	0	0	0	0	0
Not Stated	0	0	0	0	0	0	0	0
TOTALS	0	0	0	0	0	0	0	0
SUM BY RACE	0		0		0		0	

Table 13-E-8
ALL MEDICARE PERSONS DISCHARGED FROM HOSPITALS IN U.S., 1975
OTHER HEART DISEASE SPECIFIED AS RHEUMATIC
ICDA-8-REV. 398.0

<u>AGE</u>	<u>ALL RACES</u>		<u>WHITE</u>		<u>OTHER ONLY</u>		<u>BLACK ONLY</u>	
	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>
0-4	0	0	0	0	0	0	0	0
5-9	0	0	0	0	0	0	0	0
10-14	0	0	0	0	0	0	0	0
15-19	0	0	0	0	0	0	0	0
20-24	5	10	5	5	0	0	0	5
25-29	5	5	5	0	0	5	0	0
30-34	15	10	10	10	5	0	0	0
35-39	15	25	15	10	0	0	0	15
40-44	35	45	25	30	0	0	10	15
45-49	85	130	75	110	0	0	10	20
50-54	150	165	130	160	0	0	20	5
55-59	105	275	85	260	10	5	10	10
60-64	295	450	230	415	35	10	30	25
65-69	485	1190	450	1130	25	25	10	35
70-74	365	890	345	855	10	25	10	10
75 up	385	870	370	805	10	30	5	35
Not Stated	0	0	0	0	0	0	0	0
TOTALS	1945	4065	1745	3790	95	100	105	175
SUM BY RACE	6010		5535		195		280	

Table 13-E-9
ALL MEDICARE PERSONS DISCHARGED FROM HOSPITALS IN U.S., 1975
CHRONIC ISCHEMIC HEART DISEASE (WITH HYPERTENSIVE DISEASE)
ICDA-8-REV. 412.0

<u>AGE</u>	<u>ALL RACES</u>		<u>WHITE</u>		<u>OTHER ONLY</u>		<u>BLACK ONLY</u>	
	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>
0-4	0	0	0	0	0	0	0	0
5-9	0	0	0	0	0	0	0	0
10-14	0	0	0	0	0	0	0	0
15-19	0	0	0	0	0	0	0	0
20-24	10	10	10	10	0	0	0	0
25-29	5	5	5	5	0	0	0	0
30-34	45	5	30	5	0	0	15	0
35-39	110	20	60	20	0	0	50	0
40-44	280	95	210	45	5	5	65	45
45-49	395	205	285	120	5	0	105	85
50-54	1055	565	835	360	30	5	190	200
55-59	1535	1015	1210	680	50	5	275	330
60-64	2705	1985	1995	1565	155	35	555	385
65-69	11525	14970	9670	12415	480	570	1375	1985
70-74	10390	17175	8625	14815	455	415	1310	1945
75 up	15845	39275	13505	34200	480	1320	1860	3755
Not Stated	0	0	0	0	0	0	0	0
TOTALS	43900	75325	36440	64240	1660	2355	5800	8730
SUM BY RACE	119225		100680		4015		14530	

Table 13-E-10
ALL MEDICARE PERSONS DISCHARGED FROM HOSPITALS IN U.S., 1975
CHRONIC ISCHEMIC HEART DISEASE WITHOUT MENTION OF HYPERTENSION
ICDA-8-REV. 412.9

<u>AGE</u>	<u>ALL RACES</u>		<u>WHITE</u>		<u>OTHER ONLY</u>		<u>BLACK ONLY</u>	
	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>
0-4	0	0	0	0	0	0	0	0
5-9	5	0	5	0	0	0	0	0
10-14	0	0	0	0	0	0	0	0
15-19	0	0	0	0	0	0	0	0
20-24	15	0	15	0	0	0	0	0
25-29	15	5	10	0	0	0	5	5
30-34	105	20	90	20	0	0	15	0
35-39	470	100	410	90	5	0	55	10
40-44	1525	200	1450	175	5	5	70	20
45-49	3380	690	3160	630	30	0	190	60
50-54	6045	1700	5585	1505	130	25	330	170
55-59	8935	3445	8155	3075	305	55	475	315
60-64	14505	6755	13225	6165	540	110	740	480
65-69	60810	42975	55940	38880	2085	1705	2785	2390
70-74	56925	51630	52385	47425	1555	1250	2985	2955
75 up	114245	160955	106430	146890	2250	5950	5565	8115
Not Stated	0	0	0	0	0	0	0	0
TOTALS	266980	268475	246860	244855	6905	9100	13215	14520
SUM BY RACE	535455		491715		16005		27735	

Table 13-E-11
ALL MEDICARE PERSONS DISCHARGED FROM HOSPITALS IN U.S., 1975
ACUTE MYOCARDITIS
ICDA-8-REV. 422.0

<u>AGE</u>	<u>ALL RACES</u>		<u>WHITE</u>		<u>OTHER ONLY</u>		<u>BLACK ONLY</u>	
	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>
0-4	0	0	0	0	0	0	0	0
5-9	0	0	0	0	0	0	0	0
10-14	0	0	0	0	0	0	0	0
15-19	0	0	0	0	0	0	0	0
20-24	0	0	0	0	0	0	0	0
25-29	0	0	0	0	0	0	0	0
30-34	0	0	0	0	0	0	0	0
35-39	0	0	0	0	0	0	0	0
40-44	0	0	0	0	0	0	0	0
45-49	0	10	0	0	0	5	0	5
50-54	0	0	0	0	0	0	0	0
55-59	10	5	10	5	0	0	0	0
60-64	0	10	0	10	0	0	0	0
65-69	45	15	45	15	0	0	0	0
70-74	15	40	10	35	0	0	5	5
75 up	60	50	55	45	5	0	0	5
Not Stated	0	0	0	0	0	0	0	0
TOTALS	130	130	120	110	5	5	5	15
SUM BY RACE	260		230		10		20	

Table 13-E-12
ALL MEDICARE PERSONS DISCHARGED FROM HOSPITALS IN U.S., 1975
CHRONIC DISEASE OF ENDOCARDIUM (OF AORTIC VALVE, NONRHEUMATIC)
ICDA-8-REV. 424.1

	<u>ALL RACES</u>		<u>WHITE</u>		<u>OTHER ONLY</u>		<u>BLACK ONLY</u>	
<u>AGE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>
0-4	0	0	0	0	0	0	0	0
5-9	0	0	0	0	0	0	0	0
10-14	0	0	0	0	0	0	0	0
15-19	0	0	0	0	0	0	0	0
20-24	0	0	0	0	0	0	0	0
25-29	0	0	0	0	0	0	0	0
30-34	0	0	0	0	0	0	0	0
35-39	0	0	0	0	0	0	0	0
40-44	0	0	0	0	0	0	0	0
45-49	0	0	0	0	0	0	0	0
50-54	0	0	0	0	0	0	0	0
55-59	5	0	5	0	0	0	0	0
60-64	10	0	10	0	0	0	0	0
65-69	50	0	35	0	10	0	5	0
70-74	50	10	45	10	0	0	5	0
75 up	70	15	65	10	5	0	0	5
Not Stated	0	0	0	0	0	0	0	0
TOTALS	185	25	160	20	15	0	10	5
SUM BY RACE	210		180		15		15	

Table 13-E-13
ALL MEDICARE PERSONS DISCHARGED FROM HOSPITALS IN U.S., 1975
CARDIOMYOPATHY
ICDA-8-REV. 425.0

AGE	ALL RACES		WHITE		OTHER ONLY		BLACK ONLY	
	MALE	FEMALE	MALE	FEMALE	MALE	FEMALE	MALE	FEMALE
0-4	0	0	0	0	0	0	0	0
5-9	0	0	0	0	0	0	0	0
10-14	0	0	0	0	0	0	0	0
15-19	0	5	0	5	0	0	0	0
20-24	0	0	0	0	0	0	0	0
25-29	10	0	0	0	0	0	10	0
30-34	20	5	20	5	0	0	0	0
35-39	55	10	55	5	0	0	0	5
40-44	100	20	65	15	0	5	35	0
45-49	115	45	110	35	0	0	5	10
50-54	115	80	75	75	0	5	40	0
55-59	190	55	150	35	10	5	30	15
60-64	210	90	175	55	10	0	25	35
65-69	475	340	435	305	0	5	40	30
70-74	285	280	250	220	5	10	30	50
75 up	215	310	165	285	0	0	50	25
Not Stated	0	0	0	0	0	0	0	0
TOTALS	1790	1240	1500	1040	25	30	265	170
SUM BY RACE	3030		2540		55		435	

Table 13-E-14
ALL MEDICARE PERSONS DISCHARGED FROM HOSPITALS IN U.S., 1975
CONGESTIVE HEART FAILURE
ICDA-8-REV. 427.0

<u>AGE</u>	<u>ALL RACES</u>		<u>WHITE</u>		<u>OTHER ONLY</u>		<u>BLACK ONLY</u>	
	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>
0-4	0	0	0	0	0	0	0	0
5-9	0	0	0	0	0	0	0	0
10-14	0	5	0	5	0	0	0	0
15-19	20	10	10	10	10	0	0	0
20-24	10	40	5	25	0	0	5	15
25-29	15	35	10	15	0	0	5	20
30-34	60	40	50	25	0	0	10	15
35-39	175	40	100	35	10	0	65	5
40-44	160	55	105	35	15	5	40	15
45-49	380	215	325	160	0	5	55	50
50-54	805	345	660	265	10	0	135	80
55-59	1360	730	1130	580	35	10	195	140
60-64	2615	1425	2190	1130	125	55	300	240
65-69	10845	8320	9225	7025	435	295	1185	1000
70-74	12270	10915	10615	9330	290	320	1365	1265
75 up	29480	38730	26470	34135	665	1490	2345	3105
Not Stated	0	0	0	0	0	0	0	0
TOTALS	58195	60905	50895	52775	1595	2180	5705	5950
SUM BY RACE	119100		103670		3775		11655	

Table 13-E-15
ALL MEDICARE PERSONS DISCHARGED FROM HOSPITALS IN U.S., 1975
LEFT VENTRICULAR FAILURE
ICDA-8-REV. 427.1

<u>AGE</u>	<u>ALL RACES</u>		<u>WHITE</u>		<u>OTHER ONLY</u>		<u>BLACK ONLY</u>	
	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>
0-4	0	0	0	0	0	0	0	0
5-9	0	0	0	0	0	0	0	0
10-14	0	0	0	0	0	0	0	0
15-19	0	0	0	0	0	0	0	0
20-24	5	0	5	0	0	0	0	0
25-29	0	0	0	0	0	0	0	0
30-34	5	0	0	0	5	0	0	0
35-39	0	0	0	0	0	0	0	0
40-44	10	5	10	5	0	0	0	0
45-49	0	0	0	0	0	0	0	0
50-54	35	0	20	0	0	0	15	0
55-59	20	5	20	5	0	0	0	0
60-64	55	30	40	30	5	0	10	0
65-69	235	185	205	170	10	5	20	10
70-74	180	205	145	175	20	5	15	25
75 up	510	460	460	415	10	10	40	35
Not Stated	0	0	0	0	0	0	0	0
TOTALS	1055	890	905	800	50	20	100	70
SUM BY RACE	1945		1705		70		170	

Table 13-E-14
ALL MEDICARE PERSONS DISCHARGED FROM HOSPITALS IN U.S., 1975
CONGESTIVE HEART FAILURE
ICDA-8-REV. 427.0

<u>AGE</u>	<u>ALL RACES</u>		<u>WHITE</u>		<u>OTHER ONLY</u>		<u>BLACK ONLY</u>	
	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>
0-4	0	0	0	0	0	0	0	0
5-9	0	0	0	0	0	0	0	0
10-14	0	5	0	5	0	0	0	0
15-19	20	10	10	10	10	0	0	0
20-24	10	40	5	25	0	0	5	15
25-29	15	35	10	15	0	0	5	20
30-34	60	40	50	25	0	0	10	15
35-39	175	40	100	35	10	0	65	5
40-44	160	55	105	35	15	5	40	15
45-49	380	215	325	160	0	5	55	50
50-54	805	345	660	265	10	0	135	80
55-59	1360	730	1130	580	35	10	195	140
60-64	2615	1425	2190	1130	125	55	300	240
65-69	10845	8320	9225	7025	435	295	1185	1000
70-74	12270	10915	10615	9330	290	320	1365	1265
75 up	29480	38730	26470	34135	665	1490	2345	3105
Not Stated	0	0	0	0	0	0	0	0
TOTALS	58195	60905	50895	52775	1595	2180	5705	5950
SUM BY RACE	119100		103670		3775		11655	

Table 13-E-15
ALL MEDICARE PERSONS DISCHARGED FROM HOSPITALS IN U.S., 1975
LEFT VENTRICULAR FAILURE
ICDA-8-REV. 427.1

AGE	ALL RACES		WHITE		OTHER ONLY		BLACK ONLY	
	MALE	FEMALE	MALE	FEMALE	MALE	FEMALE	MALE	FEMALE
0-4	0	0	0	0	0	0	0	0
5-9	0	0	0	0	0	0	0	0
10-14	0	0	0	0	0	0	0	0
15-19	0	0	0	0	0	0	0	0
20-24	5	0	5	0	0	0	0	0
25-29	0	0	0	0	0	0	0	0
30-34	5	0	0	0	5	0	0	0
35-39	0	0	0	0	0	0	0	0
40-44	10	5	10	5	0	0	0	0
45-49	0	0	0	0	0	0	0	0
50-54	35	0	20	0	0	0	15	0
55-59	20	5	20	5	0	0	0	0
60-64	55	30	40	30	5	0	10	0
65-69	235	185	205	170	10	5	20	10
70-74	180	205	145	175	20	5	15	25
75 up	510	460	460	415	10	10	40	35
Not Stated	0	0	0	0	0	0	0	0
TOTALS	1055	890	905	800	50	20	100	70
SUM BY RACE	1945		1705		70		170	

Table 13-E-16
ALL MEDICARE PERSONS DISCHARGED FROM HOSPITALS IN U.S., 1975
OTHER MYOCARDIAL INSUFFICIENCY
ICDA-8-REV. 428.0

<u>AGE</u>	<u>ALL RACES</u>		<u>WHITE</u>		<u>OTHER ONLY</u>		<u>BLACK ONLY</u>	
	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>
0-4	0	0	0	0	0	0	0	0
5-9	0	0	0	0	0	0	0	0
10-14	0	0	0	0	0	0	0	0
15-19	0	0	0	0	0	0	0	0
20-24	0	0	0	0	0	0	0	0
25-29	5	0	5	0	0	0	0	0
30-34	0	0	0	0	0	0	0	0
35-39	10	0	5	0	0	0	5	0
40-44	10	10	10	5	0	0	0	5
45-49	75	10	70	5	0	0	5	5
50-54	35	45	35	40	0	0	0	5
55-59	90	40	80	35	0	0	10	5
60-64	195	70	180	60	5	0	10	10
65-69	610	520	560	465	10	30	40	25
70-74	700	585	650	530	10	5	40	50
75 up	1185	1855	1100	1675	25	50	60	130
Not Stated	0	0	0	0	0	0	0	0
TOTALS	2915	3135	2695	2815	50	85	170	235
SUM BY RACE	6050		5510		135		405	

Table 13-E-17
ALL MEDICARE PERSONS DISCHARGED FROM HOSPITALS IN U.S., 1975
ILL-DEFINED HEART DISEASE (OTHER AND UNSPECIFIED)
ICDA-8-REV. 429.9

<u>AGE</u>	<u>ALL RACES</u>		<u>WHITE</u>		<u>OTHER ONLY</u>		<u>BLACK ONLY</u>	
	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>
0-4	0	0	0	0	0	0	0	0
5-9	0	0	0	0	0	0	0	0
10-14	0	0	0	0	0	0	0	0
15-19	5	0	0	0	0	0	5	0
20-24	5	5	5	5	0	0	0	0
25-29	0	10	0	10	0	0	0	0
30-34	10	10	5	10	0	0	5	0
35-39	20	0	20	0	0	0	0	0
40-44	50	20	35	20	0	0	15	0
45-49	70	25	65	20	0	0	5	5
50-54	110	100	95	90	0	0	15	10
55-59	220	150	170	140	20	0	30	10
60-64	425	215	335	180	0	0	90	35
65-69	1720	1295	1460	1065	80	70	180	160
70-74	1590	1480	1400	1280	40	35	150	165
75 up	3115	4125	2765	3605	75	130	275	390
Not Stated	0	0	0	0	0	0	0	0
TOTALS	7340	7435	6355	6425	215	235	770	775
SUM BY RACE	14775		12780		450		1545	

Table 13-E-18
ALL MEDICARE PERSONS DISCHARGED FROM HOSPITALS IN U.S., 1975
SUMMARY ALL AGES AND ALL CONDITIONS
SELECTED CONDITIONS FOR WHICH HEART TRANSPLANTATION IS INDICATED

<u>AGE</u>	<u>ALL RACES</u>		<u>WHITE</u>		<u>OTHER ONLY</u>		<u>BLACK ONLY</u>	
	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>
0-4	0	0	0	0	0	0	0	0
5-9	5	0	5	0	0	0	0	0
10-14	0	5	0	5	0	0	0	0
15-19	25	15	10	15	10	0	5	0
20-24	60	70	45	50	0	0	15	20
25-29	80	60	55	30	0	5	25	25
30-34	290	120	225	105	10	0	55	15
35-39	935	275	740	215	20	5	175	55
40-44	2225	525	1935	395	35	20	255	110
45-49	4690	1585	4240	1325	45	15	405	245
50-54	8635	3320	7690	2785	180	35	765	500
55-59	12870	6280	11340	5340	445	80	1085	860
60-64	21760	11835	19000	10355	900	210	1860	1270
65-69	89900	73745	80865	65140	3260	2825	5775	5780
70-74	85190	85680	76625	76960	2465	2125	6100	6595
75 up	167875	250640	153935	225705	3620	9130	10320	15805
Not Stated	0	0	0	0	0	0	0	0
TOTALS	394540	434155	356710	388425	10990	14450	26840	31280
SUM BY RACE	828695		745135		25440		58120	

Table 13-E-19
ALL MEDICARE PERSONS DISCHARGED FROM HOSPITALS IN U.S., 1975
AGES 5-54 ONLY
SELECTED CONDITIONS FOR WHICH HEART TRANSPLANTATION IS INDICATED

<u>AGE</u>	<u>ALL RACES</u>		<u>WHITE</u>		<u>OTHER ONLY</u>		<u>BLACK ONLY</u>	
	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>
0-4								
5-9	5	0	5	0	0	0	0	0
10-14	0	5	0	5	0	0	0	0
15-19	25	15	10	15	10	0	5	0
20-24	60	70	45	50	0	0	15	20
25-29	80	60	55	30	0	5	25	25
30-34	290	120	225	105	10	0	55	15
35-39	935	275	740	215	20	5	175	55
40-44	2225	525	1935	395	35	20	255	110
45-49	4690	1585	4240	1325	45	15	405	245
50-54	8635	3320	7690	2785	180	35	765	500
55-59								
60-64								
65-69								
70-74								
75 up								
Not Stated	0	0	0	0	0	0	0	0
TOTALS	16945	5975	14945	4925	300	80	1700	970
SUM BY RACE	22920		19870		380		2670	

Table 13-E-20
ALL MEDICARE PERSONS DISCHARGED FROM HOSPITALS IN U.S., 1975
AGES 10-54 ONLY
SELECTED CONDITIONS FOR WHICH HEART TRANSPLANTATION IS INDICATED

AGE	ALL RACES		WHITE		OTHER ONLY		BLACK ONLY	
	MALE	FEMALE	MALE	FEMALE	MALE	FEMALE	MALE	FEMALE
0-4								
5-9								
10-14	0	5	0	5	0	0	0	0
15-19	25	15	10	15	10	0	5	0
20-24	60	70	45	50	0	0	15	20
25-29	80	60	55	30	0	5	25	25
30-34	290	120	225	105	10	0	55	15
35-39	935	275	740	215	20	5	175	55
40-44	2225	525	1935	395	35	20	255	110
45-49	4690	1585	4240	1325	45	15	405	245
50-54	8635	3320	7690	2785	180	35	765	500
55-59								
60-64								
65-69								
70-74								
75 up								
Not Stated	0	0	0	0	0	0	0	0
TOTALS	16940	5975	14940	4925	300	80	1700	970
SUM BY RACE	22915		19865		380		2670	

Table 13-E-21
ALL MEDICARE PERSONS DISCHARGED FROM HOSPITALS IN U.S., 1975
AGES 5-49 ONLY
SELECTED CONDITIONS FOR WHICH HEART TRANSPLANTATION IS INDICATED

<u>AGE</u>	<u>ALL RACES</u>		<u>WHITE</u>		<u>OTHER ONLY</u>		<u>BLACK ONLY</u>	
	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>
0-4								
5-9	5	0	5	0	0	0	0	0
10-14	0	5	0	5	0	0	0	0
15-19	25	15	10	15	10	0	5	0
20-24	60	70	45	50	0	0	15	20
25-29	80	60	55	30	0	5	25	25
30-34	290	120	225	105	10	0	55	15
35-39	935	275	740	215	20	5	175	55
40-44	2225	525	1935	395	35	20	255	110
45-49	4690	1585	4240	1325	45	15	405	245
50-54								
55-59								
60-64								
65-69								
70-74								
75 up								
Not Stated	0	0	0	0	0	0	0	0
TOTALS	8310	2655	7255	2140	120	45	935	470
SUM BY RACE	10965		9395		165		1405	

Table 13-E-22
ALL MEDICARE PERSONS DISCHARGED FROM HOSPITALS IN U.S., 1975
AGES 10-49 ONLY
SELECTED CONDITIONS FOR WHICH HEART TRANSPLANTATION IS INDICATED

<u>AGE</u>	<u>ALL RACES</u>		<u>WHITE</u>		<u>OTHER ONLY</u>		<u>BLACK ONLY</u>	
	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>MALE</u>	<u>FEMALE</u>
0-4								
5-9								
10-14	0	5	0	5	0	0	0	0
15-19	25	15	10	15	10	0	5	0
20-24	60	70	45	50	0	0	15	20
25-29	80	60	55	30	0	5	25	25
30-34	290	120	225	105	10	0	55	15
35-39	935	275	740	215	20	5	175	55
40-44	2225	525	1935	395	35	20	255	110
45-49	4690	1585	4240	1325	45	15	405	245
50-54								
55-59								
60-64								
65-69								
70-74								
75 up								
Not Stated	0	0	0	0	0	0	0	0
TOTALS	8305	2655	7250	2140	120	45	935	470
SUM BY RACE	10960		9390		165		1405	

CHAPTER 14

A SYNTHESIS OF THE ESTIMATES OF THE NEED FOR
HEART TRANSPLANTATION

Roger W. Evans, Ph.D.
Research Scientist
Health and Population Study Center
Battelle Human Affairs Research Centers
4000 N.E. 41st Street
Seattle, Washington 98105



A. INTRODUCTION

Chapters 11 through 13 contain a considerable number of tables, all reflective of the need for heart transplantation in the United States. The morbidity analyses have provided insight into the prevalence of those cardiac conditions for which heart transplantation may be appropriate. As described in the foregoing chapters, morbidity is a useful although imperfect indicator of the need for heart transplantation. In order to lend some refinement to the morbidity-based need estimates, a separate mortality analysis was also undertaken. These analyses are also limited: they may be overly restrictive in some respects and not restrictive enough in others. On the one hand, the assumption that every person who dies of a heart condition for which heart transplantation may be indicated assumes that each person is free of other contraindications. This is simply untrue so, in actuality, the pool of suitable candidates may be smaller than the mortality data would indicate. On the other hand, if the current patient selection criteria are relaxed, the number of potential recipients may increase substantially, and could include people who are less sick than those currently selected to undergo cardiac transplantation.

If anything, the results of the analyses presented in the foregoing chapters suggest that great care must be taken in interpreting the need for heart transplantation. The objective of this very short chapter is to synthesize and summarize the various need estimates, excluding from consideration various details, such as age, sex, and race breakdowns, which are provided in previous chapters.

B. DATA

As noted above, several sources of data have been used to derive estimates of the need for heart transplantation. These include: (1) the National Hospital Discharge Survey data (see Chapter 11), (2) national mortality data (see Chapter 12), and (3) data from the Medicare Statistical System (see Chapter 13). Each of these data sources is fully described in Chapters 11 through 13. The major limitations of each data source as well as the methods of data analysis are described in each of these chapters.

C. RESULTS

Two tables have been prepared to summarize the major findings of the need analyses. Separate tables have been prepared for two major need categories. Table 14-1 summarizes the estimates if the selection of patients was limited to those between the ages of 10 and 54 years of age. Table 14-2 provides the same estimates for persons between the ages of 10 and 49. Recall that in previous chapters it was noted that age in excess of 54 years was considered an absolute contraindication to heart transplantation, while age in excess of 49 years might be considered a relative contraindication to the procedure. For these reasons, separate summary tables have been prepared. As is apparent from these tables, the more stringent the age criterion, the fewer the number of potential candidates for heart transplantation.

As shown in Tables 14-1 and 14-2, for only three years--1977, 1978, 1979--are estimates available from each data source for both the morbidity and mortality need indicators. This is because data for the most recent five years were obtained for the analyses. No attempt was

Table 14-1
Summary of Need Estimates According to Need Indicator
For Persons 10-54 Years of Age

NEED INDICATOR	YEAR						
	<u>1975</u>	<u>1976</u>	<u>1977</u>	<u>1978</u>	<u>1979</u>	<u>1980</u>	<u>1981</u>
	(NUMBER OF PERSONS)						
<u>MORBIDITY--HOSPITAL DISCHARGE DATA</u>							
U.S. POPULATION ^a			483,324	473,244	289,221	281,438	267,486
MEDICARE BENEFICIARIES ONLY ^b	22,915	26,315	28,425	28,585	20,240		
<u>MORTALITY--DEATHS</u>							
U.S. POPULATION ^b			24,179	23,941	13,980	14,085	
MEDICARE BENEFICIARIES ONLY ^b			1,421	1,372	1,012		

^aAll estimates based on age and diagnosis, excluding diabetics.

^bRefers to current Medicare beneficiaries only. All estimates based on age and diagnosis, no other exclusions.

Table 14-2
Summary of Need Estimates According to Need Indicator
For Persons 10-49 Years of Age

NEED INDICATOR	YEAR				
	1975	1976	1977	1978	1980
				(NUMBER OF PERSONS)	1981
MORBIDITY--HOSPITAL DISCHARGE DATA					
U.S. POPULATION ^a			277,001	268,429	175,228
MEDICARE BENEFICIARIES ONLY ^b	10,960	12,245	13,685	13,765	9,635
					167,037
					149,856
MORTALITY--DEATHS					
U.S. POPULATION ^b		12,430	12,587	12,544	7,628
MEDICARE BENEFICIARIES ONLY ^b			630	647	424

^aAll estimates based on age and diagnosis, excluding diabetics.

^bRefers to current Medicare beneficiaries only. All estimates based on age and diagnosis, no other exclusions.

made to assume complete overlap in years of data because of the desire to analyze the most recently available data. Again it is evident that there is considerable variation between the estimates for 1977 and 1978 and those for 1979, due to the fact that the 1977 and 1978 data were coded according to the 8th Revision of the International Classification of Diseases (ICDA-8-REV), while the 1979 data were coded according to the 9th Revision of the International Classification of Diseases (ICD-9-CM).

Using the more stringent indicator of the need for heart transplantation, that being mortality, Table 14-1 indicates that in 1980, approximately 14,100 people ages 10-54 years died from conditions for which heart transplantation may be indicated. Of these 14,100 people, the referral experience of the Stanford cardiac transplant program (see Chapter 12) would suggest that, upon further evaluation, only 1,932 people or 13.7 percent of them would have been potentially accepted for a transplant. Of these 1,932 people, 1,177 or 60.9 percent would have been likely to receive a heart transplant. The remaining patients would have died awaiting a donor or would have continued to await the availability of one. If these same exclusion fractions are applied to the 1979 mortality data, it is expected that 1,167 patients would have been likely to receive a heart transplant.

If the age criterion was limited to those persons between the ages of 10 and 49 years, in 1980, 7,788 people died of the cardiac conditions of interest, and in 1979, 7,628 did so. Again, using the foregoing exclusion fractions to refine the estimates of actual recipients, the number of heart transplants in 1980 would have been 650, and in 1979, 636.

Among persons who are currently Medicare-eligible, the number of persons likely to actually receive a heart transplant is extremely small using the percentage exclusions derived from the Stanford experience. In 1979, for persons between the ages of 10 and 54, it is expected that 85 would have received a transplant, while only 35 people would have in the ages 10-49 need category.

The foregoing estimates are summarized in Table 14-3. Great caution must be exercised in interpreting these figures since they assume that current patient selection will remain unaltered. They also assume that the Stanford experience can be generalized to the population as a whole. Neither of these assumptions may be completely accurate.

D. CONCLUSION

Based on these analyses, the number of persons ages 10-54 who may be considered for a heart transplant in the U.S. population is about 14,000. Of these, fewer than 1,200 are likely to receive heart transplants. Among Medicare beneficiaries, around 1,000 people may be considered for a heart transplant, but less than 100 would actually receive the procedure when all other exclusion factors are considered. While these estimates are useful, they are based on data collected for purposes other than for which they have been used here. In the future, as additional experience is gained in the field, these estimates should be refined further. Also, the limitations of the data upon which these analyses have been based may be better understood as well as their implications evaluated further.

Table 14-3
 Projected Number of Heart Transplants Among Non-Medicare
 and Currently Medicare-Eligible Persons, U.S.

<u>POTENTIAL RECIPIENT CATEGORY</u>	<u>YEAR</u>	
	<u>1979</u>	<u>1980</u>
<u>AGES 10-54</u>		
NON-MEDICARE ELIGIBLES	1,167	1,177
MEDICARE ELIGIBLES	85	N/A
<u>AGES 10-49</u>		
NON-MEDICARE ELIGIBLES	636	650
MEDICARE ELIGIBLES	35	N/A

N/A = Not available.



CHAPTER 15
AN OVERVIEW OF ORGAN DONOR ISSUES

Diane L. Manninen, Ph.D
Research Scientist
Health and Population Study Center
Battelle Human Affairs Research Centers
4000 N.E. 41st Street
Seattle, Washington 98105

A. INTRODUCTION

Much attention has recently been focused on the issue of organ transplantation and the problems of organ procurement (Gunby, 1983a; 1983b; 1983c). This awareness of organ procurement problems has been created, at least temporarily, by the mass media. Nation-wide appeals have been made to help find suitable liver donors to save the lives of children with incurable liver disease. The shortage of other organs has also received considerable attention.

Furthermore, the Federal government has demonstrated increased interest in the problems of organ procurement. Hearings held before the House of Representatives Subcommittee on Investigations and Oversight of the Committee on Science and Technology was the first occasion upon which the public became exceedingly aware of both organ transplantation as well as the current shortage of donor organs. Chaired by Representative Albert Gore, Jr., this investigation was originally designed to evaluate current methods of securing human organs for transplantation. However, during the three days of hearings, the legislators were confronted by a much wider array of social, economic, medical, political, and ethical questions surrounding the issue of organ transplantation. This investigation was followed by two workshops on solid organ procurement sponsored by the Surgeon General, C. Everett Koop, M.D. Both the Surgeon General's workshops and the investigation sponsored by the House Science and Technology Subcommittee on Investigations and Oversight examined the problems of organ procurement and discussed possible ways to develop a better organ procurement system.

These activities resulted in the formation of a private sector nonprofit organization--the American Council on Transplantation (ACT). The objectives of this organization as stated in the Bylaws are as follows:

- . motivate the public to donate organs and tissues for transplantation
- . encourage health professionals to identify donors and refer them to organ procurement programs and tissue banks
- . promote equitable access to and effective use of multiple organs and tissues
- . address the technical, ethical, and financial issues involved in organ recovery and transplantation

Unfortunately, the shortage of organs for transplantation is not a new problem (Barnes, 1983; Bart, 1978; Bart et al., 1981a; 1981b; Cooper et al., 1977; Couch, 1966; Council on Scientific Affairs, 1981; Crosby and Walters, 1972; Fox et al., 1972; Friedberg et al., 1972; Oksa and Pasternack, 1981; Russell and Cosimi, 1979; Sells, 1979). It has been, and will continue to be, a problem as long as various end-stage diseases--hepatic, cardiac, renal, and others--remain incurable. The problem has received renewed attention, however, largely because of recent advances in transplantation immunology (Starzl, et al., 1982; Veith, et al., 1983; Reitz, 1982; Borel, 1982; Oyer, et al., 1982b; Storb, 1983; Sutherland, 1983; Najarian et al., 1983). By possibly relaxing patient selection criteria, cyclosporine has the potential of further increasing the demand for the few available donor organs.

While currently cited figures clearly reveal that, in practice, an acute shortage of organs exist, no systematic attempt has been made to estimate the availability of donor hearts. Since the number of available donor organs is a key factor in determining the number of heart transplants that are performed each year, providing a reasonable estimate of the potential availability of donor hearts was one of the major objectives of the National Heart Transplantation Study. The approach that we used in estimating organ availability has involved producing a range of estimates based upon various data sources. These figures range from maximum estimates based on the total number of hearts available in the U.S. each year considering only the medical selection criteria imposed on heart donors, to much lower estimates based on the number that are likely to be available through existing organ procurement networks.

The primary purpose of this chapter is to provide an overview of organ donor issues. The remainder of the chapter is divided into four sections. First, we present a detailed discussion of the factors limiting the availability of donor organs. This includes the strict medical selection criteria imposed on heart donors, problems in the long distance transportation of donor hearts, existing networks for the procurement of hearts and other organs, and public attitudes toward organ donation. This section is followed by one which summarizes past attempts at estimating the supply of cadaveric hearts. Next, we provide a brief overview of the following four chapters in which we present our analyses of the availability of hearts for transplantation. The final section of this chapter

highlights the importance of producing an accurate estimate of the availability of cadaveric hearts, emphasizing the fact that the supply of acceptable donor organs is likely to be a major constraint limiting the number of heart transplants that are performed each year.

B. FACTORS LIMITING THE AVAILABILITY OF DONOR ORGANS

Clearly, the number of suitable hearts available for transplantation is limited. Approximately one-third of the patients awaiting transplantation at the Stanford University Medical Center and the Medical College of Virginia die before a suitable heart becomes available (Schroeder, 1979; Thomas and Lower, 1978). Medical selection criteria, limitations in the long distance transportation and long-term preservation (Toledo-Pereyra, 1982; Karow and Pegg, 1981) of cadaveric hearts, and the types of networks established for the procurement of donor organs are the major factors to be considered in estimating the potential supply of donor hearts. Another important consideration is the willingness of individuals to donate hearts and other organs for transplantation.

1. STRICT MEDICAL SELECTION CRITERIA

The first and by far the most restrictive factor limiting the potential supply of donor hearts is the stringent set of medically-related selection criteria (Thomas et al., 1978a). Since the donor heart must still be beating at the time of removal, all cardiac donors must meet an acceptable definition of brain death (Bernat et al., 1981; 1982; President's Commission for the Study of

Ethical Problems in Medicine and Behavioral Research, 1981; Capron and Lynn, 1982). Thus, only in-hospital brain dead patients are possible candidates for consideration as heart donors.

Not all patients, however, who satisfy the brain death criterion are acceptable heart donors. In addition to the brain death criterion, each potential heart donor must meet several other criteria which serve to further reduce the number of available organs. These include age, cause of death, and absence of other diseases and infections. Experience has shown that male donors under the age of 35 and female donors under the age of 40 have the greatest likelihood of resulting in a successful transplant (Baumgartner et al., 1979; Copeland and Stinson, 1979). In most cases death is the result of traumatic head injuries (i.e., blunt trauma, gunshot wound) or cerebrovascular accidents. An acceptable cardiac donor must have no history of cardiac disease or cardiac abnormalities and have no evidence of thoracic or cardiac trauma, including intracardiac drug administration during resuscitative procedures. A potential heart donor must have no history of transient, severe hypotension after injury. A donor must also be free of malignancy and infection at the time of death.

In general, patients who have been hospitalized for more than one week following irreversible cerebral damage cannot be considered for cardiac donation because of the high incidence of sepsis in such patients (Oyer et al., 1982a; 1982b). Patients with localized pneumonia are not always good donors since they pose risks for the transmission of widespread pneumonia to the heavily immunosuppressed

patient. Patients with a history of HBsAg positive hepatitis or toxoplasmosis likewise cannot be considered for organ donation for similar reasons.

Potential donors must receive both adequate cardiovascular and pulmonary support to prevent myocardial injury prior to organ removal. Hypothermia, often accompanying brain death, can become a problem and must be avoided in order to maintain optimal cardiac performance and minimize the potential for associated cardiac arrhythmias (Oyer et al., 1982a; 1982b). Concern about high-dose inotropic pharmacologic support is also appropriate when there is adequate hydration, normal arterial gases, and electrolyte replacement, since these are indicative of myocardial damage and contraindicate cardiac donation.

At present, tissue matching is not an extremely important consideration in the identification of donors and recipients for heart transplantation. This, however, varies across heart transplant programs. (The Medical College of Virginia and University of Pittsburgh, for example, are carefully examining the implications of matching, see Singh et al., 1982). Recipients and donors are now preoperatively matched on three criteria, including ABO blood-type compatibility, a negative lymphocyte crossmatch, and compatibility in terms of the specific human lymphocyte antigen, HLA-A2. Matching on more than the HLA-A2 antigen is not reasonable because the number of people awaiting transplantation is small, thus, resulting in an extremely low probability of finding a cadaver donor-recipient pair with identical antigens at more than one locus (Oyer et al., 1982a).

An increase in the size of the donor pool (or improvements in long-term storage of donor organs) may make it possible to be more selective in identifying the best donor heart for transplantation. However, given the current rather limited supply of available donor organs, one does not have the luxury of extensive matching of donor and recipient tissues.

2. LONG DISTANCE TRANSPORTATION OF DONOR HEARTS

The medically-related donor selection criteria serve to limit the total number of hearts which are available for transplantation each year (Griep et al., 1971; Bleasel et al., 1969). However, the number of those hearts which are actually harvested and successfully transplanted is further reduced because of logistical problems associated with identification of donors and recipients, obtaining consent from next-of-kin, and problems of storage and transportation of the organs (Cooper, 1975; 1976; English et al., 1979; Lamb and Kiernan, 1980; Watson et al., 1979; Thomas and Lower, 1978; Thomas et al., 1978a; 1978b).

The primary factor underlying much of the problem in this regard is the matter of time. Current technology in organ storage permits a mean ischemic time of only 3-4 hours, although recent improvements have been witnessed in terms of prolonged storage of the canine heart (Guerraty, 1981; Kaye et al., 1981). At present, after brain death has been declared, the donor remains in an intensive care unit and the donor heart is kept beating artificially until an acceptable recipient can be located, until arrangements are made for the transportation of the cadaveric heart to the site of the

transplant, and until the surgical procedure is performed. Such a severe time constraint can have serious implications in terms of a possible mismatch in the geographic distribution in the supply and demand for donor hearts. Given the current location of the major heart transplant programs, and the increasing use of long distance organ procurement, however, it is likely that a recipient can be located for each donor heart. Thus, the possibility of a geographical mismatch between supply and demand is greatly reduced.

In recent years, all major cardiac transplantation programs in the U.S. have begun to gain considerable experience with long-distance procurement of the donor heart (Oyer et al., 1981; Hastillo et al., 1980; Watson et al., 1979; Thomas and Lower, 1978; Thomas et al., 1978a). Preliminary studies at the Medical College of Virginia indicate the feasibility of obtaining donor hearts from over an 800 to 1000 mile radius (Thomas and Lower, 1978). Further improvements in the long-term storage of human hearts would allow the shipment of hearts even greater distances, thereby enlarging the size of the donor pool. Additional time would allow more thorough screening of potential donors for underlying disease, the presence of closed chest trauma, pharmacologic and acid-base status, and overall stability of the cardiovascular system resulting in the selection of healthier donor hearts. It would also allow for better matching of donor and recipient characteristics, thus permitting identification of the "best" recipient for any given heart.

3. PROCUREMENT NETWORKS FOR DONOR HEARTS

Since time is a critical element in the heart transplantation process, another factor which influences the number of potential donor

organs which are actually transplanted is the rapid communication of information necessary to match potential donors and recipients. No network currently exists solely for the procurement of hearts; however, numerous organ procurement programs do exist for the procurement of kidneys and other organs.

At the present time, the country is divided into a complex network of organ procurement programs which have responsibility for the identification of donors and the procurement of viable organs. There are approximately 110 of these programs, most of which are highly concentrated on the East coast. Several programs also serve the West coast. The mid-section of the country has a much lower concentration of procurement programs, owing largely to lower population density and the wider distribution of medical facilities. While existing programs have been very effective in procuring kidneys, recent media attention has underscored the need for more concerted efforts in the procurement of extrarenal organs.

It is frequently argued that existing organ procurement programs could function more efficiently and effectively through greater coordination of efforts. One such attempt to coordinate organ procurement is the United Network for Organ Sharing (UNOS) which was previously operated by the South-Eastern Organ Procurement Foundation (SEOPF), and has now been incorporated as a separate entity. UNOS, which provides computer-matching for 136 of the 155 transplant centers in the United States, is able to call more than 4,500 potential kidney recipients in 42 states. Although the UNOS system is not currently set up to handle hearts as efficiently as kidneys, this or a similar

source of information on the potential availability of donor hearts could be established and used as a network for heart procurement.

Recent increases in the number of extrarenal organ transplants have made it necessary to find more efficient means of identifying, matching, and distributing the available organs for transplantation. One new system of matching available organs with recipients was developed by the North American Transplant Coordinators Organization (NATCO). This system, known as 24-ALERT, is a taped telephone message accessible from any telephone in the world. The system is updated daily and provides information to procurement and transplant coordinators and physicians, concerning the immediate needs for extrarenal transplantation. Different categories for the status of a patient's condition have been established to identify patients with the most crucial need for organs. Since its implementation in September 1982, the 24-ALERT system has been directly responsible for the recovery of 292 organs and their subsequent transplantation by 25 different transplant centers in the United States and Canada (Broznick, 1984).

4. PUBLIC ATTITUDES TOWARD ORGAN DONATION

All 50 states and the District of Columbia have adopted some form of Uniform Anatomical Gift Act specifying the procedures by which a person can donate his or her organs for transplantation (e.g., driver's license provisions, independently distributed organ donor cards). Or, if the decedent's wishes are unknown, the donation of organs may be authorized by the next-of-kin. Thus, another important factor which limits the supply of donor hearts is the willingness of

individuals to donate their organs, or the organs of their family members, for transplantation.

Past studies of public attitudes toward organ transplantation have generally examined the motivations behind organ donation (Cleveland and Johnson, 1970; Gade, 1972; Simmons et al., 1972; 1974). Most of these studies have focused on kidney transplantation (Moore et al., 1976; Munster et al., 1974). The purpose of many of these studies has been to increase organ donation (Raible, 1975; Sadler et al., 1969). Few studies, however, have attempted to survey the general public regarding their attitudes concerning the donation of organs for transplantation, and no study has focused on attitudes regarding heart donation.

In one such study, a 1968 poll taken by the Gallup Organization, Inc., 70 percent of all people interviewed indicated that they would be willing to donate organs for transplantation (Schmeck, 1969). However, a more recent Gallup Poll commissioned by the National Kidney Foundation revealed that 83 percent of those people aware of organ transplants indicated that they were either very likely or somewhat likely to donate the kidneys of a loved one, but only 40 percent were very likely or somewhat likely to want their own kidneys donated after death (Ogden, 1983).

Some have suggested that passage of laws allowing presumed consent--whereby physicians could simply take needed tissues and organs from cadavers unless the individual carried a card stating his or her objection to organ donation, or unless the deceased person's family states an objection--is one way to increase the availability of

organs for transplantation (Caplan, 1983). Implied consent laws are currently used in several European countries (Cantaluppi et al., 1984). Such laws, if enacted in the United States, would undoubtedly increase the number of organs harvested. It is, however, quite likely that presumed consent laws would not be viewed favorably by the American public. Programs aimed at increasing public awareness, as well as the awareness of the medical community, of the need for donor organs, are perhaps a more realistic way of increasing the availability of organs for transplantation.

C. PAST ATTEMPTS AT ESTIMATING THE SUPPLY OF CADAVERIC HEARTS

Just as there is no consensus among those who have attempted to estimate current need for heart transplantation (see Chapter 10), there is little agreement in past estimates of the availability of donor hearts. For example, Russell and Cosimi (1979) estimate that between 12,000 and 60,000 heart donors may be available each year. These numbers are based on estimated deaths of young people with brain trauma or spontaneous brain hemorrhage (Cooper et al., 1977; Bart, 1978). Other recent estimates of the potential number of donor hearts available each year are as low as 1,000-2000 (Knox, 1980; Pennock et al., 1982; Leaf, 1980).

Another data source which has been used to estimate the potential supply of donor hearts is information regarding the number of kidney transplants that are performed each year as reported by the End-Stage Renal Disease Program. In making such estimates, it is generally assumed that nearly all kidney donors (except living donors, of

course) are potential heart donors, with no attempt being made to apply specific donor heart selection criteria to the kidney donors. In 1983, for example, 6,112 kidney transplants were performed. Of these, 4,328 involved cadaveric donors. Thus, assuming that all kidney donors were suitable heart donors, and assuming both cadaveric kidneys were transplanted into separate individuals, 2,164 hearts would have been available for transplantation. However, in reality, due to problems of transport (i.e., mean ischemic time), social acceptability (people may donate kidneys but not hearts), and the likely failure of some kidney donors to meet the heart donor criteria, the actual figure is likely to be somewhat smaller.

Without further study, it is difficult to assess the accuracy of these estimates. The estimate of the number of potential heart donors which is based upon the number of cadaveric kidney transplants performed appears to be somewhat high, because the selection criteria for donor hearts are somewhat more stringent than those for kidneys. However, the number may not be unrealistic, since Bart and associates estimate that as many as 80% of potential kidneys are not harvested (Bart et al., 1981b). In this study we have considered many of the relevant factors which past studies have ignored in an effort to provide a more realistic assessment of the potential supply of donor hearts.

D. AN OVERVIEW OF SUBSEQUENT CHAPTERS

Chapters 16 through 19 contain detailed analyses of the availability of donor hearts. These analyses are particularly

important because, without the development of a viable artificial heart, the supply of donor organs is likely to be the major factor limiting the number of heart transplants that are performed each year. The analysis presented in Chapter 16 reveals a number of fallacies and misconceptions concerning the role of organ donor cards in organ procurement. In Chapter 17, we analyze public attitudes regarding the donation of hearts and other organs for transplantation. Estimates of the potential supply of donor hearts based on the number of in-hospital deaths are reported in Chapter 18. Finally, in Chapter 19 we estimate the availability of cadaver hearts through the existing network of organ procurement programs. A more detailed description of the analyses contained in each of these chapters is prescribed below.

1. CHAPTER 16. PROBLEMS IN THE IDENTIFICATION OF POTENTIAL ORGAN DONORS: MISCONCEPTIONS AND FALLACIES ASSOCIATED WITH DONOR CARDS

In 1968 the Uniform Anatomical Gift Act (UAGA) was prepared in order to provide guidance to the states to standardize and simplify their laws dealing with anatomical gifts (Council on Scientific Affairs, 1981; Stuart et al., 1981; Rivers, 1982). The ultimate goal of the measure was to increase the supply of donor organs, facilitating donation and procurement of organs by delineating both the procedures for executing anatomical gifts and the rights of the parties involved. Although all 50 states and the District of Columbia have adopted some form of Uniform Anatomical Gift Act, organ donation procedures vary considerably from state to state.

This chapter reveals a number of fallacies and misconceptions concerning the role of donor documentation (i.e., organ donor cards)

in regard to anatomical gifts and organ procurement. Data for this analysis were obtained through an informal inquiry of individuals familiar with organ donation procedures in all 50 states and the District of Columbia. Organ procurement agencies (OPAs) or leading transplant programs were identified in 41 states and the District of Columbia, as the best sources of information regarding anatomical gifts. In the remaining nine states, offices of the Attorney General were contacted for the citation of the state's Anatomical Gift Act and brain death statutes. Information about organ donation procedures was collected by calling the largest hospital in the state. The inquiry focused on the following areas that are directly relevant to the issue of donor cards: (1) donor documentation (driver's license provisions and independently distributed donor cards); (2) procedures for determining donor status; and (3) consent required from decedent's next-of-kin (with and without donor documentation available).

2. CHAPTER 17. POTENTIAL ORGAN DONOR AVAILABILITY: RESULTS OF AN ATTITUDE SURVEY

This chapter reports the results of a telephone survey of public attitudes concerning the donation of hearts and other organs for transplantation. Data for this analysis were obtained through a telephone survey of a national probability sample of 2,056 respondents (1,017 men and 1,039 women) 18 years of age or older. The survey was conducted by the Gallup Organization, Inc. specifically for the National Heart Transplantation Study. The primary purpose of the survey was to obtain information regarding attitudes toward organ donation in general, and in particular, to determine the willingness of individuals to donate hearts for transplantation.

Respondents were asked a series of 14 questions regarding organ transplantation. The questions can be broadly classified into three groups: (1) previous information concerning organ transplantation; (2) willingness to donate organs for transplantation; and (3) attitudes regarding appropriate procedures of organ removal. The results of this analysis were then used to modify estimates of donor availability based on an analysis of in-hospital deaths, the results of which are presented in Chapter 18.

3. CHAPTER 18. AN ANALYSIS OF IN-HOSPITAL DEATHS AS AN INDICATOR OF DONOR AVAILABILITY

Clearly the number of hearts available each year for transplantation is finite. This chapter presents estimates of the maximum number of hearts that would be available each year based on the strict medical selection criteria imposed on heart donors. These figures were then modified using data regarding the willingness of individuals to donate organs for transplantation.

Two separate data sources were used for the analysis: the National Hospital Discharge Survey and the Potential Organ Donor Survey. The National Hospital Discharge Survey, conducted by the National Center for Health Statistics, contains a sample of patients discharged from short-stay hospitals in the U.S. each year. The Potential Organ Donor Survey, as described above, is a telephone survey of public attitudes toward organ donation. The survey was conducted specifically for the National Heart Transplantation Study.

The advantage of using the National Hospital Discharge Survey data, rather than national mortality data, in estimating organ availability is that the National Hospital Discharge Survey data

provide information on in-hospital deaths. The data file also contains information on patient characteristics which are necessary in determining whether or not a particular patient is a potential heart donor. More specifically, the data file contains both demographic (i.e., age, sex) and medical (i.e., primary and secondary diagnoses) variables which are useful in excluding patients as potential organ donors.

Thus, in this chapter, two sets of estimates are presented. The first are estimates of the number of individuals who die in hospitals in the U.S. each year who meet the strict medical selection criteria imposed on heart donors (based solely on contraindications reported on the Hospital Discharge Survey data). The second are estimates of the number of these individuals who might be expected to actually donate organs (based on the results of a survey of public attitudes toward organ donation).

4. CHAPTER 19. DONOR AVAILABILITY: AN ANALYSIS OF ORGAN PROCUREMENT PROGRAM DATA

This chapter presents estimates of the availability of hearts through the existing network of programs which were established for the procurement of kidneys and other organs. In order to make these estimates, it was necessary to obtain information on the characteristics of individuals who donate kidneys and other organs to determine the proportion that would be potential heart donors (that is, those that meet the strict medical selection criteria imposed on heart donors). Without a doubt, organ banks and organ procurement programs represent the best source of this information.

Data for this analysis were obtained from a survey of 80 organ procurement programs across the U.S. The data, which were obtained specifically for the National Heart Transplantation Study, were collected over a period of eight months. For each organ donor, programs were asked to provide information which included age, sex, primary cause of death, and heart function on arrival at the hospital. Programs were also asked to provide information on infections, associated disease, and other contraindications to heart donation. Data on a total of 1,955 individuals who donated kidneys and other organs were collected and used to estimate the proportion of those organ donors that would have met the strict medical criteria imposed on heart donors. This information was then used to derive estimates of the number of donor hearts that would be available each year through the existing network of organ procurement programs.

E. CONCLUSION

As suggested by the above discussion, estimating the availability of donor hearts is not a simple task. Indeed, the supply of acceptable organs is limited by factors ranging from strict medical selection criteria (i.e., age and other medical contraindications) to the willingness of individuals to donate organs for transplantation. As part of the National Heart Transplantation Study, we have attempted to provide realistic estimates of the availability of donor hearts using different data sources. Several of these data sources were compiled specifically for this study. Our estimates range from maximum estimates based on the number of in-hospital deaths each year, to much

lower estimates based on the number that are likely to be available through the existing network of organ procurement programs.

It should be emphasized that a realistic estimate of donor availability is an extremely important component of a comprehensive study of heart transplantation. The number of heart transplants performed each year will, of course, influence heart transplant costs. Moreover, a large disparity between the supply of donor hearts and the need for heart transplants has definite legal and ethical implications. The importance of an accurate estimate of donor availability is underscored by the fact that, until a viable artificial heart is developed, the supply of acceptable donor organs is likely to be the major factor limiting the number of heart transplants that are performed each year.

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CHAPTER 16

PROBLEMS IN THE IDENTIFICATION OF POTENTIAL ORGAN DONORS:
MISCONCEPTIONS AND FALLACIES ASSOCIATED WITH DONOR CARDS

Thomas D. Overcast, J.D., Ph.D

Roger W. Evans, Ph.D.

Lisa E. Bowen

Marilyn M. Hoe

Cynthia A. Livak

Battelle Human Affairs Research Centers

4000 N.E. 41st Street

Seattle, Washington 98105

A. INTRODUCTION

Over the past year, a great deal of attention has been focused on organ transplantation, and in particular, liver transplantation. Much of this attention can be attributed to two widely publicized pediatric liver transplants, that of Jamie Fiske and Brandon Hall (Gunby, 1983). As a result, an awareness of organ procurement problems of an almost unprecedented magnitude has been created, at least temporarily, by the mass media. Pleas have been made by parents of other children who are in need of liver transplants, but have failed to receive them due to the unavailability of suitable donors. On any given day it is estimated that 70 or more children are awaiting liver transplants at the University of Pittsburgh--the largest liver transplant program in the U.S. (Calne, 1983; Starzl, et al. 1982).

In response to the critical shortage of livers for transplantation, the Subcommittee on Investigation and Oversight of the Committee on Science and Technology (U.S. House of Representatives), chaired by Congressman Albert Gore, Jr., held hearings April 13, 14, and 27, 1983, on the "procurement and distribution of human organs for transplantation." The Subcommittee was "particularly interested in looking at approaches designed to enhance donation of organs and promote efficient distribution to transplant recipients" (Evans, 1983a). Subsequently, the Surgeon General of the United States convened a special workshop on "Solid Organ Procurement for Transplantation: Educating the Physician and the Public" on June 7-9, 1983. The objective of the workshop was to "bring together a diverse group of people to recommend ways to encourage organ donation." Since

these two initiatives were undertaken within a two month period, it can hardly be denied that the whole matter of harvesting organs for transplantation is of foremost concern. In fact, the President specifically asked the Surgeon General to assist in this area.

Unfortunately the shortage of organs for transplantation is not a new problem (Evans, 1983b; Barnes, 1983; Bart, 1978; Bart, et al., 1981a; 1981b; Cooper, Abrams, Blagg, 1977; Couch, 1966; Council on Scientific Affairs, 1981; Crosby, Walters, 1972; Fox, Failla, Kaufmann, et al., 1972; Friedberg, Larsen, 1972; Oksa, Pasternack, 1981; Russell, Cosimi, 1979; Sells, 1979). It has been, and will continue to be, a problem so long as various end-stage diseases--hepatic, cardiac, renal, and others--remain incurable. The problem has received renewed attention, however, largely because of recent advances in transplantation immunology (Starzl, et al., 1982; Veith, et al., 1983; Reitz, 1982; Borel, 1982; Oyer, et al., 1982; Storb, 1983; Sutherland, 1983; Najarian, Ferguson, et al., 1983). Cyclosporine has been heralded as a "miracle drug" and FDA approval is now expected by July, 1983 (Borel, 1982). Because it may lead physicians to relax patient selection criteria, and, thus, increase the demand for the few available donor organs, it is apparent that various initiatives must be undertaken to increase the supply of cadaver organs. It is in this regard that efforts have been made to encourage more people to sign and carry organ donor cards, giving medical professionals the right to harvest organs upon declaration of brain death. While donor cards clearly indicate an individual's wishes, there are many commonly held misconceptions and fallacies

associated with them. The Uniform Anatomical Gift Act (UAGA) serves as the focal point for many of these misconceptions.

In 1968 the Uniform Anatomical Gift Act (UAGA) was prepared in order to provide guidance to the states to standardize and simplify their laws dealing with anatomical gifts (Council on Scientific Affairs, 1981; Stuart, Veith, Cranford, 1981; Rivers, 1982). The National Conference of Commissioners on Uniform State Laws and the American Bar Association drafted the Act as a model for states whose laws at that time did not clearly define a person's ability to donate his or her body or body parts. The ultimate goal of the measure was to increase the supply of donor organs, facilitating donation and procurement of organs by delineating both the procedures for executing anatomical gifts and the rights of the parties involved. It was assumed that a simpler, more comprehensive approach to organ donation would increase the number of anatomical gifts.

All 50 states and the District of Columbia had adopted some form of the UAGA by 1973. Today--a decade later--evidence clearly indicates that the UAGA has not succeeded in matching the supply of donor organs to the demand; demand still far exceeds the number of donor organs available (Evans, 1983b).

To investigate some of the reasons for the disparity between the supply of and demand for donor organs, Battelle conducted an informal nationwide inquiry of medical and transplant center personnel who were familiar with organ donation procedures in their states (Bowen, Hoe, Livak, Evans, Overcast, 1982). Portions of the inquiry focused on the following areas that are directly relevant to the issue of donor cards:

- . donor documentation (driver's license provisions and independently distributed donor cards);
- . procedures for determining donor status; and
- . consent required from decedent's next-of-kin (with and without donor documentation available).

B. METHODS

A telephone inquiry of all 50 states and the District of Columbia was conducted. Organ procurement agencies (OPAs) or leading transplant programs were identified in 41 states and the District of Columbia, as the best sources of information regarding anatomical gifts. In these jurisdictions, transplant coordinators were contacted to respond to various open- and closed-ended questions.

In the remaining nine states, offices of the Attorney General were contacted for the citation of the state's Anatomical Gift Act and brain death statutes. Information about organ donation procedures was collected by calling the largest hospital in the state. Since these nine states were generally small or sparsely populated, the main hospital, for the most part, was easily identified. Respondents to the questions in these states included physicians, nurses, and hospital technicians.

Prior to undertaking the inquiry, general questions to be included were pretested by talking with people in ten states. The pretest included questions such as "What is the death standard in the state?" and "Is next-of-kin consent required in addition to a signed organ donor card for the removal of organs?" The pretest also encouraged open-ended discussion of organ donation and procurement procedures, and resulted in the construction of a 14-question interview guide.

Some of these final questions required a "yes" or "no" answer, while others were left open-ended to encourage the respondent to describe specific procedures or situations.

After all fifty states and the District of Columbia were contacted, the results were coded and percentages were calculated. The results presented here are in the form of percentages where possible. Where this is not possible, representative case studies are used to describe organ donation procedures in the various states.

C. RESULTS

1. DOCUMENTATION

The documentation required to indicate a person's wish to donate his or her organs varies from state to state. Forty-four states (86%)¹ have a provision on their permanent drivers' licenses for organ donation. These provisions are optional, meaning that the driver has the option of stating his or her intentions regarding organ donation. A variety of methods are used to identify potential donors on licenses:

- . legal document on the back of the license signed by two witnesses;
- . donor card attached as part of a folding license;
- . donor card mailed with license;
- . donor sticker mailed with license that can be attached to the license (some states require the signatures of two witnesses on the sticker);
- . "ORGAN DONOR" stamped across the face of the license in red letters.

- . "Donor Box" on face of the driver's license that may be marked yes or no.

No state requires drivers to indicate whether or not they want to donate organs. At best, drivers are presented with the option of stating their intentions. In one state² where the donor box appears on the face of the license, a respondent reported that the response has been impressive: out of 1.5 million drivers, 900,000 (60%) are designated as donors. However, this figure is specifically repudiated by the Director of the Department of Motor Vehicles, which is responsible for drivers licensing. Other states³ that place organ donation provisions on the faces of their drivers' licenses report fewer designated donors (see Table 16-1).

Another document that may be used to identify potential donors is the organ donor card. These cards are generally distributed independently of the drivers' licenses by an organization or institution established within the state. This form of documentation is available in all but three states.⁴ In most states, several different agencies distribute donor cards, including organ procurement programs, hospitals and the National Kidney Foundation (see Table 16-2).

According to the representatives of organ procurement agencies, there is no way of determining how many people carry organ donor cards. The Departments of Motor Vehicles in some states know how many drivers are designated as donors on their licenses, and it may be possible to find out how many cards were distributed by various organizations and institutions by consulting each source. However,

Table 16-1
Designated Donors By State With Driver's License Provisions

<u>STATE</u>	<u>TOTAL NUMBER OF DRIVERS</u>	<u>NUMBER OF DRIVERS DESIGNATED AS DONORS</u>	<u>PERCENTAGE</u>
#1	2,866,000	229,625	8.0
#2	2,246,937	97,304	4.3
#3	3,000,000	52,000	1.7
#4*	1,016,067	86,719	8.5

*These are figures for licenses/renewals processed in 1982 only and do not represent the total state driving population.

Table 16-2
Agencies Distributing Donor Cards Within States

National Kidney Foundation	35 states	(69%)
Lion's Eye Bank	29 states	(57%)
Hospitals	21 states	(41%)
Public Education	21 states	(41%)
Organ Procurement Agency or Organ Bank	18 states	(35%)
Media	9 states	(18%)

these efforts combined would still not accurately reveal how many cards are actually signed and carried. The number is likely to be far smaller than the number of donor cards distributed.

Although no one responding to the question could provide exact figures, they repeatedly emphasized the fact that the percentage of donors with cards is very small. One transplant coordinator estimated that the number of card-carrying donors is two or three percent of all donors at most. Another coordinator reported that out of 600 donors in the past seven years, only three had carried donor cards.

2. PROCEDURES

No state has a comprehensive procedure to be followed by law enforcement and medical personnel who might be involved with accident victims for determining if a potential organ donor is carrying a card. Law enforcement officers or medical personnel may "stumble" on a donor card when looking for identification and medical insurance information in an accident victim's wallet, but such an occurrence is likely to be rare.

In responding to a question about what action police would take to identify potential donors (i.e., at the scene of an accident), only ten (20%) states⁵ report that police are involved at all in looking for donor cards (i.e., identifying potential donors at the scene of an accident). Only one state⁶ reported that its state police department had an official policy directing its force to look for donor cards at the scene of an accident and to alert hospital personnel if one was found. It is perhaps ironic that police are not

more involved in searching for donor cards considering that in some states only police, not medical personnel, are authorized to examine the personal effects of accident victims.

In regard to what action medical personnel would take to identify a potential donor, many states have active organ procurement agencies (OPAs) that provide regular in-service training concerning organ donation and procedures to hospital nursing staff, technicians, and physicians. As a result of this training, in many cases a nurse recognizes that a patient may be a suitable donor and asks the attending physician to have the family contacted concerning organ donation. Often nurses will broach the subject first because the physician is not ready to acknowledge that a patient is not going to survive. If the physician is willing, the physician or a nurse will approach the family about donating organs or will ask the OPA transplant coordinator to do so. However, if the physician is not willing to have the family approached, the matter is usually not pursued further.

The organ procurement agencies in a few states have established ties with at least one intensive care unit nurse in almost every hospital who acts as an organ retrieval coordinator. The nurse/coordinator monitors the course of every patient in the unit. When a patient's condition is clearly terminal the nurse arranges with the attending physician to have one of them talk with the family about organ donation--after the family has been informed of their relative's prognosis. With this system, almost every potential donor is identified and his or her family approached concerning organ donation.

The lack of emphasis on determining whether a potential donor has a signed donor card is understandable considering that, even when there is a properly completed card, almost every state also requires formal consent from the donor's next-of-kin to remove organs.

3. CONSENT

Perhaps the most crucial step in the entire organ donation procedure is obtaining consent from the next-of-kin. If donor documents are not available--and the percentage of donors with cards is negligible--the UAGA permits survivors to make anatomical gifts of all or part of the decedent's body, unless they are aware of contrary intentions by the decedent. If a donor card is not found, medical personnel in 45 states (88%) indicated that next-of-kin would be consulted concerning organ donation. This also may be the case in four other states,⁷ but not necessarily; it may depend strictly on the desires of the attending physician. In the remaining two states,⁸ the issue of organ donation is never raised with survivors, apparently because there are no organ procurement programs in the states.

Section 2(e) of the Uniform Anatomical Gift Act states, "The rights of the donee created by the gift are paramount to the rights of others except as provided by Section 7(d) (medical examiners' duties)." Given proper documentation, such as a signed donor card or marked driver's license, donees may legally remove organs from decedents even if families object. The evidence suggests, however, that this rarely happens. With donor documentation available, family consent is still required in the vast majority of states. Forty-seven

states (92%)⁹ indicated that surgeons require family approval. When presented with the hypothetical situation in which the decedent's relatives could not be located, only 11¹⁰ of the 47 states said they would probably proceed with organ removal.

Three major reasons are generally given for requiring family consent despite valid donor documentation. In 28 states (55%), people said they rely on family confirmation in order to avoid potential legal disputes. They felt that proceeding with organ removal against family wishes would be risking prosecution by the family, even though the UAGA states that it is their right to do so. Physicians and hospitals alike still feel vulnerable and are not willing to subject themselves to an additional source of liability.

Ethical considerations are another major reason that next-of-kin consent is required. It is a factor in 25 states (49%) where medical personnel feel that it is morally wrong to ignore objections raised by survivors. One person explained that consent was obtained to avoid adding distress to an already distressed family. Another side of the ethical issue expressed was the moral obligation to ensure survival of the organ procurement programs; alienating the next-of-kin could be counterproductive to that end.

Finally, 15 states (29%) cited fear of bad publicity as a reason for obtaining family consent for organ removal. Transplant coordinators work hard to project a positive image in the community, avoiding any situation that might make them look like "vultures." Bad press can seriously damage organ procurement by discouraging people from donating.

Only four states (8%)¹¹ take full advantage of the provisions of their anatomical gift acts. Transplant coordinators in these states explained that potential donors' intentions--legally documented--cannot be vetoed by others. The family is simply informed of the procedure as a matter of formality.

D. DISCUSSION

Responses to the inquiry reveal a number of fallacies and misconceptions concerning the role of donor documentation (i.e., organ donor cards) in regard to anatomical gifts and organ procurement. To begin with, it is evident that the original goal of the Uniform Anatomical Gift Act has not been achieved; the Act alone has not succeeded in more closely matching the supply of donor organs to demand--demand still far exceeds supply.

One of the most important findings of this inquiry is the explicit belief that a greater number of signed donor cards will necessarily increase the supply of donor organs. However, the fact that only a small percentage of donors actually have donor cards raises questions about both current methods of donor card distribution and their overall effectiveness. The efforts of private groups and organizations are limited by their resources and, at best they can only ask the people they reach to consider organ donation. By way of contrast, federal and state governments have the greatest access to the public and have the capability of devoting substantial resources to the task of promoting organ donation. Government involvement, however, raises important substantive and procedural questions that

have yet to be systematically addressed (i.e., Should the government play a more aggressive role in promoting organ donation? Should the government assume the responsibility of at least presenting organ donation as an option to each adult? What role will the legal system play in any effort to encourage or enforce donation?).

Second, it is apparent that hospitals and procurement programs differ in their degree of success at obtaining organs for transplantation. (van der Vliet, Koostra, 1982; van der Vliet, Koostra, Krom, 1983) The inquiry indicated, however, that the greatest difference between such programs is not in how donors are identified, but rather in how consistently programs attempt to do so. (Bart, et al., 1981b) Consistent efforts to procure organs generally involve the establishment and maintenance of a network of referral sources among the medical community. As revealed by the inquiry, perhaps the greatest difficulty in maintaining a reliable referral network lies in changing the attitudes of both the medical community and the general public.

Third, in regard to matters of consent to donate, it is clear that the provisions of the Uniform Act are largely ignored. Although the Uniform Act explicitly recognizes donor documents as sufficient legal evidence of an individual's donative intent (and extends blanket immunity to physicians and medical personnel "acting in good faith" in regard to organ procurement), the vast majority of medical institutions do not allow organ removal without the consent of next-of-kin. While the underlying philosophy of the Uniform Act is to facilitate the expression of an individual's intent to donate, the reality is that

such intentions will not be carried out unless and until a family member consents.

In the majority of instances, this policy is based on a fear of prosecution. The medical community simply does not feel that the provisions of the Uniform Act provide sufficient protection. The important question here is, "if stronger legislation is needed to remove their fears, what guarantees would have to be given to bring the practice of organ procurement into line with the theory of the law?"

Finally, it is clear that legislation alone will not remove all of the perceived barriers that stand in the way of efficient organ procurement. There remains the important question of how to deal with ethical objections to the removal of organs from an individual who has not expressed an intention to donate or whose next-of-kin object in the face of such an intention. There are those who suggest that the resolution to this problem lies in a re-orientation of our way of thinking about consent. These analysts suggest the implementation of an "opting out" system of presumed consent (Sells, 1979; Fletcher in press), under which an individual would be presumed to have consented to donation unless he or she specifically filed an objection while still alive and competent. Regardless of the specific approach taken, the resolution of these troubling ethical considerations will involve a considerable investment of time and resources in education, both professional and public.

FOOTNOTES

1. All states and the District of Columbia, except: Delaware, Florida, Hawaii, Nebraska, Nevada, Pennsylvania, Washington.
2. Colorado.
3. Minnesota, Connecticut, Alabama, North Carolina, respectively.
4. Michigan, North Dakota, Wyoming.
5. Arizona, Colorado, Indiana, Iowa, Louisiana, Maryland, Michigan, New Jersey, Virginia, Texas.
6. Louisiana.
7. Arizona, Illinois, Kansas, Mississippi.
8. Montana, Kentucky.
9. Alabama, Alaska, Arkansas, Connecticut, Delaware, District of Columbia, Georgia, Hawaii, Indiana, Illinois, Indiana, Iowa, Kansas, Kentucky, Louisiana, Maine, Maryland, Mississippi, Michigan, Minnesota, Missouri, Montana, Nebraska, Nevada, New Hampshire, New Jersey, New Mexico, New York, North Carolina, North Dakota, Ohio, Oklahoma, Oregon, Pennsylvania, Rhode Island, South Carolina, South Dakota, Tennessee, Texas, Vermont, Virginia, Washington, West Virginia, Wisconsin.
10. District of Columbia, Georgia, Kentucky, Maryland, Massachusetts, Missouri, Nevada, New Hampshire, North Carolina, Oregon, Virginia.
11. California, Colorado, Florida, Wyoming.

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CHAPTER 17

POTENTIAL ORGAN DONOR AVAILABILITY: RESULTS
OF AN ATTITUDE SURVEY

Diane L. Manninen, Ph.D.
Research Scientist
Health and Population Study Center
Battelle Human Affairs Research Centers
4000 N.E. 41st Street
Seattle, Washington 98105

A. INTRODUCTION

One major objective of the National Heart Transplantation Study was to provide a range of estimates of the potential availability of donor hearts. The supply of donor hearts is severely limited by a number of factors, such as strict medical selection criteria, limitations in the long distance transportation of cadaveric hearts, lack of long-term methods of organ preservation, and the extensiveness of networks established for the procurement of donor organs. However, public attitudes regarding the donation of organs for transplantation also play an important role.

This chapter reports the results of a telephone survey of public attitudes concerning the donation of hearts and other organs for transplantation. The survey, conducted as part of the National Heart Transplantation Study, was administered to a national probability sample of 2,056 respondents of age 18 or older. In addition to questions regarding a person's willingness to donate his or her own organs, respondents were also asked similar questions regarding their willingness to donate the organs of relatives.

Several past studies have examined attitudes toward organ transplantation and the motivations behind organ donation (Cleveland and Johnson, 1970; Gade, 1972; Simmons et al., 1972; Simmons et al., 1974). Many such studies have focused on kidney transplantation (Moore et al., 1976; Munster et al., 1974). The purpose of many of these studies has been to increase organ donation (Raible, 1975; Sadler et al., 1969). Few studies, however, have attempted to survey the general public regarding their attitudes concerning the donation

of organs for transplantation, and no study has focused on attitudes regarding heart donation.

In one such study, a 1968 poll taken by the Gallup Organization, 70 percent of the people interviewed indicated they would be willing to donate organs (Schmeck, 1969). However, a more recent Gallup Poll commissioned by the National Kidney Foundation revealed that 83 percent of those people aware of organ transplants indicated that they were either very likely or somewhat likely to donate the kidneys of a loved one, but only 40 percent were very likely or somewhat likely to want their own kidneys donated after death (Ogden, 1983). A summary of the results of this survey is included as Appendix 17-A.

The approach which was used in estimating the availability of donor hearts has involved producing a range of estimates based upon various data sources. These figures range from maximum estimates based on the total number of hearts available in the U.S. each year considering only the medical selection criteria imposed on heart donors, to much lower estimates based on the number which are likely to be available through existing organ procurement networks. The maximum estimates of donor availability were derived from data on in-hospital deaths obtained from the National Hospital Discharge Survey, which are available from the National Center for Health Statistics. In order to provide more realistic estimates of the availability of donor hearts, these estimates derived from in-hospital deaths were then modified based on the information regarding the willingness of individuals to donate organs for transplantation reported here. An analysis of in-hospital deaths is provided in

Chapter 18 of this report. The minimum estimates of donor availability were based on data obtained from an 8 month survey of organ procurement programs. This analysis is presented in Chapter 19 of this report.

B. DATA AND METHODS

1. DATA

Data for this analysis were obtained by a telephone survey of a national probability sample of 2,056 respondents (1,017 men and 1,039 women) 18 years of age or older. The survey was conducted by the Gallup Organization, Inc. specifically for the National Heart Transplantation Study. The primary purpose of the survey was to obtain information regarding attitudes toward organ donation in general, and in particular, to determine the willingness of individuals to donate hearts for transplantation.

a. Sample Design. The Gallup national telephone sample is derived from the national probability sample of locations drawn for the company's continuing national surveys. The population was first arrayed in order by city size and geographically by states and regions. From this ordering a single stage sample of locations was drawn with the probability of selection proportional to the population size of locations.

The telephone numbers obtained from the national sample of households drawn in current personal interview surveys form the basis for the generation of a sample of telephone numbers. In effect, each number from a current national sample of households selects an exchange

and a bank of 100 numbers. This procedure provides a national sample of telephone exchanges with representation proportional to the incidence of residential listings by exchanges and a sample of exchanges which is up to date in terms of all working numbers both listed and unlisted.

Since the exchanges are selected from the locations drawn with stratification by region, city size, and rural-urban, the net effect is a similar stratification of exchanges. Numbers for telephone samples are randomly generated in each exchange and bank of numbers so selected.

Within the household an interview is sought with the youngest man 18 years or older who is at home. If no man is at home, an interview is sought with the oldest woman at home. This method of selection within the household has been developed empirically to produce an age distribution by men and women separately which compares closely with the age distribution of the population. Only one interview per household is conducted.

The sampling procedure is designed to produce an approximation of the U.S. civilian adult population living in telephone households, excluding those persons living in institutions such as prisons or hospitals or those living on military bases. Survey data can be applied to this population for the purpose of projecting percentages to numbers of people.

b. Survey Protocol. The survey was conducted by the Gallup Telephone Facility from October 14 through November 13, 1983. Interviews were conducted at times when adults, in general, are most

likely to be at home (i.e., on weekends, or if on weekdays, after 6:00 PM). For each randomly generated number up to three calls are made within a two day period to complete an interview before substituting another number.

c. Survey Instrument. Respondents were asked a series of 14 questions focusing on their attitudes toward organ donation. The survey instrument used is attached as Appendix 17-B. In addition to information on age, sex, and various other social and demographic characteristics, respondents were asked whether or not they would be willing to donate specific organs (kidneys, hearts, corneas, etc.). Respondents were also asked similar questions regarding permission to donate organs of his/her family. In particular the following data were collected:

- . which sources, if any, have been most effective in informing the public about organ donation;
- . whether or not individuals currently carry, or would be willing to carry, organ donor cards;
- . the willingness of individuals to give permission to donate the organs of family members;
- . which particular organs, if any, individuals would be willing to donate;
- . attitudes regarding the appropriate procedures for obtaining permission for removal of organs for transplantation; and
- . the general level of understanding regarding the concept of brain death, and attitudes concerning the removal of organs following declaration of brain death.

2. METHODS

The analyses presented here are primarily descriptive in nature. Differences in responses were examined by age (i.e., those 18-40 years, and those over 40 years) and by sex. These particular age groups were examined separately because, given current donor selection criteria, those over 40 years of age constitute a group which would not be asked to donate their own hearts for transplantation. They could, however, be asked to give their permission for the donation of the hearts of family members. Those 18 to 40 years of age, on the other hand, could donate their own hearts or the hearts of family members. No significant differences, however, were observed by either age or sex. Therefore, the results reported here represent the entire sample, rather than particular age groups.

C. RESULTS

Respondents were asked a series of 14 questions regarding organ transplantation. The questions can be broadly classified into three groups: (1) previous information concerning organ transplantation; (2) willingness to donate organs for transplantation; and (3) attitudes regarding appropriate procedures of organ removal.

1. PREVIOUS INFORMATION CONCERNING ORGAN TRANSPLANTATION

All respondents were first asked whether or not they had previously heard about organ transplantation. As shown in Table 17-1, 93.7% of those interviewed had heard about organ transplantation before. Only 5.9% reported that they had not heard of organ transplantation, while .3% said that they didn't know. This is

Table 17-1
Before Now Have You Ever Heard About Organ Transplantation?

(N = 2,056)

Yes	93.7%
No	5.9%
Don't Know	0.3%

consistent with the recent National Kidney Foundation Survey in which 93% of respondents said that they had heard or read something about organ transplantation (see Appendix 17-A). When asked if they had ever heard about or received information concerning organ donation, 69.1% responded "Yes," 30.1% responded "No," and .8% responded "Don't Know" (see Table 17-2).

Those respondents who had heard about or received information concerning organ donation were asked to identify the sources from which they learned about organ donation. These responses are shown in Table 17-3. As can be seen from the table, the three most commonly mentioned sources were television (34.6%), newspapers and magazines (37.2%), and other (38.8%). Thus, "other" was the most frequently cited category. Interestingly, mass media (in particular television, newspapers and magazines) is much more important than personal communication (doctors and nurses, friends, etc.) in providing information to individuals on organ transplantation.

2. WILLINGNESS TO DONATE ORGANS FOR TRANSPLANTATION

Respondents were next asked a series of questions regarding their willingness to donate their own organs or the organs of a relative who had recently died. Those respondents who had heard about or received information concerning organ donation prior to the survey were asked if they currently carried an organ donor card. As is shown in Table 17-4, only 19.2% of these individuals responded that they do carry an organ donor card. This represents less than 14% of all respondents. Those respondents who do not currently carry an organ donor card were then asked if they would (if asked) be prepared to

Table 17-2
Have You Ever Heard About or Received Information
Concerning Organ Donation?

(N = 2,056)

Yes	69.1%
No	30.1%
Don't Know	0.8%

Table 17-3
From What Sources Have You Learned About Organ Donation?*

(N = 1,477)

Doctors or Nurses	6.8%**
Television	34.6%
Newspapers/Magazines	37.2%
Radio	5.3%
Friends	9.7%
Lectures	1.0%
Brochures/Pamphlets	8.4%
Other	38.8%
Don't Know	5.6%

*Question asked only of respondents who had heard about or received information concerning organ donation prior to the survey.

**Percentages may total more than 100.0% because respondents may have given more than one source.

Table 17-4
Do You Currently Carry an Organ Donor Card?*

(N = 1,477)

Yes	19.2%
No	79.9%
Don't Know	0.9%

*Question asked only of respondents who had heard about or received information concerning organ donation prior to the survey.

sign and carry an organ donor card. Of these individuals, only 27.8% indicated that they would be willing to carry an organ donor card, while 19.2% said "No" and 53.0% said "Don't Know" (see Table 17-5). Obviously, many people are uncertain about organ donor cards.

Respondents were then asked if they would donate the organs of a relative who had just died. Information regarding the willingness of individuals to donate the organs of relatives is important since it is common practice to require family consent even if a person has signed an organ donor card (Overcast et al., 1984). As can be seen from Table 17-6, 52.8% indicated that they would be willing to donate the organs of a relative if they had to make the decision. Only 25.4% said they would not, while 21.8% said that they didn't know. When asked if individuals thought that their family would give permission for the removal of their organs for transplantation (Table 17-7), 42.1% thought that their family would give permission, 34.4% thought they would not and 23.6% said that they didn't know.

Finally, respondents were asked which, if any, organs they would be willing to donate. Responses to this question are presented in Table 17-8. Fewer individuals indicated that they would be willing to donate their skin or their whole body (39.7%). Not surprisingly, the largest percentage of respondents (49.6%) indicated that they would be willing to donate their kidneys. As can be seen from Table 17-8, 45.9% said that they would be willing to donate their heart.

Table 17-5
Would You, If Asked, Be Prepared to Sign and Carry
an Organ Donor Card?*

(N = 1,748)

Yes	27.8%
No	19.2%
Don't Know	53.0%

*Question asked only of respondents who do not currently
carry an organ donor card.

Table 17-6
If You Had to Make the Decision, Would You Donate
the Organs of a Relative Who Had Just Died?

(N = 2,056)

Yes	52.8%
No	25.4%
Don't Know	21.8%

Table 17-7
If You Were to Die Suddenly, Do You Think That Your Family
Would Give Permission For The Removal of Your Organs
For Transplantation?

(N = 2,056)

Yes	42.1%
No	34.4%
Don't Know	23.6%

Table 17-8
Which, If Any, of the Following Organs
Would You Be Willing to Donate?*

(N = 2,056)

Kidneys	49.6%
Corneas	46.2%
Heart	45.9%
Liver	46.7%
Lungs	44.0%
Pancreas	44.1%
Skin	39.7%
Whole Body	39.7%
Don't Know	38.2%

*Percent of respondents answering Yes.

Comparison of the responses presented in Tables 17-6 and 17-8 indicates that people are somewhat more likely to donate the organs of a relative who had just died than they are to donate their own organs. This is consistent with the findings of the National Kidney Foundation Survey, although the numbers reported in that survey differ greatly from the numbers reported here. In the National Kidney Foundation survey, 72% of those respondents who were aware of organ transplants said they are very likely to give permission to have the kidneys of a loved one donated after that person's death, and half said that they are very likely to donate their own child's kidneys in the event of accidental death of the child. However, only 24% said that they are very likely to want their own kidneys donated after their death.

3. ATTITUDES REGARDING APPROPRIATE PROCEDURES FOR ORGAN REMOVAL

Tables 17-9 through 17-14 present responses to questions regarding attitudes concerning appropriate procedures for organ removal. As can be clearly seen in Table 17-9, the majority of respondents (57.8%) felt that if someone signs an organ donor card, his or her decision should not have to be approved by his or her next-of-kin. Only 34.4% felt that such approval should be necessary, while 7.8% didn't know. Similarly, 71.0% of respondents felt that disapproval of the next-of-kin should not override the potential organ donor's wishes as expressed on an organ donor card (Table 17-10). In this case, 16.6% felt that disapproval of the next-of-kin should override the donor's wishes and 12.4% said they didn't know.

Table 17-9
Do You Feel That If Someone Signs an Organ Donor Card His or Her
Decision Should Have To Be Formally Approved By His or Her
Next-of-Kin When He or She Dies?

(N = 2,056)

Yes	34.4%
No	57.8%
Don't Know	7.8%

Table 17-10

If The Next-of-Kin Disapproves Do You Feel That Their Disapproval
Should Override the Potential Donor's Wishes as Expressed on
Any Organ Donor Card?

(N = 2,056)

Yes	16.6%
No	71.0%
Don't Know	12.4%

Table 17-11
Do You Feel That The Next-of-Kin Should Be Allowed to Donate The
Organs of Relatives Who Have Recently Died But Have Not
Signed An Organ Donor Card?

(N = 2,056)

Yes	43.9%
No	40.3%
Don't Know	15.8%

Table 17-12

Do You Feel That Doctors Should Have The Power to Remove Organs
From People Who Have Died Recently But Have Not Signed An
Organ Donor Card Without Consulting The Next-of-Kin?

(N = 2,056)

Yes	7.4%
No	86.5%
Don't Know	6.1%

Table 17-13
Do You Feel That Brain Death Should Be Used As The
Legal Definition of Death?

(N = 2,056)

Yes	55.1%
No	26.1%
Don't Know	18.8%

Table 17-14
Do You Feel That It Is All Right to Remove Organs For
Transplantation Upon Declaration of Brain Death?

(N = 2,056)

Yes	47.5%
No	33.0%
Don't Know	19.5%

In cases in which an individual had not signed an organ donor card, respondents were less likely to feel that relatives should be allowed to donate their next-of-kin's organs. Table 17-11 reveals that 43.9% of the respondents felt that the next-of-kin should be allowed to donate the organs of relatives who have recently died but have not signed an organ donor card. This belief was opposed by 40.3% of the respondents, while 15.8% were undecided. Very few individuals (7.4%), however, felt that doctors should have the power to remove organs from people who had died and had not signed an organ donor card without consulting the next-of-kin. As can be seen in Table 17-12, an overwhelming 86.5% felt that doctors should not have such power. A small percentage (6.1%) said that they didn't know.

The responses to these questions seem to suggest that presumed consent would not be popular with the American public. Many feel that passage of laws allowing presumed consent--whereby physicians could simply take needed tissues and organs from cadavers unless the individual carried a card stating his or her objection to organ donation or unless the deceased person's family stated an objection--is one way to increase the availability of organs for transplantation (Caplan, 1983). Such implied consent laws are currently used in several European countries (Cantaluppi et al., 1984). While such laws, if enacted in the United States, would undoubtedly increase the number of organs harvested, Stuart (1984) points out that they would not direct a physician to initiate organ salvage.

Finally, two questions were asked in an effort to determine individual's attitudes toward brain death. Respondents were read a brief explanation of brain death and asked if they felt that brain death should be used as the legal definition of death. Over half of the respondents (55.1%) felt that brain death should be used as the legal definition of death, whereas 26.1% felt that it should not and 18.8% said that they didn't know (Table 17-13). However, fewer individuals felt that it is all right to remove organs for transplantation upon declaration of brain death (see Table 17-14). Only 47.5% felt that removal of organs upon declaration of brain death was all right, while 33.0% felt that it was not all right and 19.5% didn't know.

It is quite interesting to compare the responses presented in Tables 17-6 and 17-14. According to Table 17-14, only 47.5% felt that removal of organs upon declaration of brain death was all right; yet, according to Table 17-6, 52.8% indicated that they would be willing to donate the organs of a relative who had just died. These results would suggest that many individuals do not fully understand that a declaration of brain death is required before organs can be removed for transplantation.

D. CONCLUSION

This chapter has presented an analysis of public attitudes concerning the donation of hearts and other organs for transplantation. Data for the analysis were obtained from a telephone survey which was administered to a national probability sample of

2,056 respondents. Respondents were asked a series of questions regarding a person's willingness to donate his or her own organs, as well as their willingness to donate the organs of relatives.

According to the results of the survey, most people (93.7%) had heard about organ donation prior to the interview. However, few indicated that they carried an organ donor card. Those respondents who said that they did not carry an organ donor card were asked if they would be prepared to sign and carry a donor card. Only 27.8% responded "Yes," while 53% said that they didn't know. This would suggest that many people are uncertain about organ donation. Thus, public education campaigns aimed at these individuals could perhaps increase the potential supply of donor organs.

Respondents were somewhat more likely to donate the organs of relatives than they were to donate their own organs. Almost 53% indicated that they would be willing to donate the organs of a relative who had just died, while approximately 50% said that they would be willing to donate their own kidneys and 46% said that they would be willing to donate their own heart. Since it is common practice to require family consent, even if a person has signed an organ donor card, the willingness of individuals to donate the organs of relatives is important in estimating organ availability. Thus, these results are used to modify our estimates of donor availability based on an analysis of in-hospital deaths. The results of this analysis are presented in Chapter 18.

The results of the survey also seem to suggest that presumed consent, viewed by many as the best way of increasing organ

availability (Starzl, 1984), would not be very popular among the American public. An overwhelming 86.5% felt that doctors should not have the power to remove organs from people who had died and had not signed an organ donor card without consulting the next-of-kin. However, the majority felt that if someone signs an organ donor card, the decision should not have to be approved by his or her next-of-kin.

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APPENDIX 17-A

ATTITUDES AND OPINIONS OF THE AMERICAN PUBLIC
TOWARDS KIDNEY DONATION



ATTITUDES AND OPINIONS OF THE AMERICAN PUBLIC
TOWARDS KIDNEY DONATION
EXECUTIVE SUMMARY

Prepared For:
THE NATIONAL KIDNEY FOUNDATION

Prepared By:
THE GALLUP ORGANIZATION, INC.
53 Bank Street
Princeton, New Jersey 08540

BACKGROUND AND METHODOLOGY

The National Kidney Foundation, as part of its plans for a national education campaign on the need for kidney donations for those needing kidney transplants, commissioned The Gallup Organization, Inc. to conduct a survey of the American public on attitudes towards kidney donations.

The survey was conducted by in-person interviews among a nationally representative sample of 1,574 persons age 18 and over. Interviewing was conducted during January 14 through January 22, 1983.

EXECUTIVE SUMMARY

AWARENESS OF ORGAN TRANSPLANTS IS HIGH

Most Americans have heard or read something about organ transplants, with 93% of a nationally representative sample of those age 18 years or over saying that they had. This level of awareness is relatively constant across all demographic variables except race, where 95% of white respondents have heard of organ transplants but only 84% of black respondents.

MOST BELIEVE THAT SOMEONE HAS TO GIVE PERMISSION FOR THEIR OWN KIDNEY TO BE DONATED IN ORDER TO HAVE KIDNEYS AVAILABLE

Among those aware of organ transplants, most (80%) believe, correctly that somebody has to have given permission for their kidney to be donated after their death in order for a kidney to be transplanted into someone who needs it.

MOST BELIEVE THAT A DOCTOR CANNOT ORDER KIDNEY REMOVAL

Equally, most (88%) believe, correctly that a doctor cannot give permission to remove the kidney of someone who has just died.

MANY FEWER BELIEVE THAT A RELATIVE OF SOMEONE WHO DIED CAN GIVE PERMISSION

A smaller proportion, but still a substantial majority (64%), believe, correctly, that a relative of someone who has died can give permission to have that person's kidneys donated.

MORE PEOPLE ARE LIKELY TO GIVE PERMISSION FOR DONATION OF KIDNEYS OF A LOVED ONE OR OF OWN CHILD THAN ARE LIKELY TO WANT THEIR OWN KIDNEYS DONATED

Almost three-quarters (72%) of those aware of organ transplants say they are very likely to give permission to have the kidneys of a loved one donated after that person's death, and half say they are very likely to donate their own child's kidneys in the event of accidental death of the child. However, only 24% say they are very likely to want their own kidneys donated after their death.

THOSE WHO ARE LIKELY TO WANT THEIR OWN KIDNEYS DONATED AFTER DEATH ARE MORE EDUCATED; WITH HIGHER INCOME; WHITES RATHER THAN BLACKS

Those who are most likely to want their own kidneys donated after their death are those who have completed more formal education and are in higher income brackets (two interactive variables). Blacks are much less likely than whites to want their own kidneys donated (10% vs. 27%). These same demographic characteristics distinguish those more likely to give permission for the kidneys of a loved one or their own child to be donated.

MANY RESPONDENTS SAY THEY HAVE REALLY THOUGHT ABOUT IT WHEN ASKED TO RATE VARIOUS REASONS AS BEING "VERY IMPORTANT"

About one in five (20%) say that a very important reason for not wanting to have their kidneys donated after their death is that "I never really thought about it."

DISLIKE FOR IDEA OF BEING CUT UP AFTER DEATH CITED AS "VERY IMPORTANT" BY ONE IN FIVE

About the same proportion (20%) cite as "very important," the reason "I don't like the idea of somebody cutting me up after I die". No other reason was cited by that large a proportion of respondents as being "very important".

FEW SAY THAT RELIGIOUS REASONS OR COMPLICATED PERMISSION PROCEDURES ARE VERY IMPORTANT

Only 7% say either that the reasons "it is against my religion" or that "it is complicated to give permission" are very important reasons for not wanting their own kidneys donated after their death.

DISLIKE FOR THE IDEA OF BEING CUT UP AFTER DEATH IS THE REASON WHICH MOST SHARPLY DIFFERENTIATES THOSE MORE AND LESS LIKELY TO WANT OWN KIDNEYS DONATED

The greatest difference between those more and less likely to want their own kidneys donated is in their response to the reason: "I don't like the idea of somebody cutting me up after I die". Only 5% of those who say they are very/somewhat likely to want their own kidneys donated characterized that reason as being "very important", compared with 44% of those who are not very/not at all likely, more than twice the difference of each of the eight other reasons presented.

FEW HAVE TAKEN ACTIONS TO IMPLEMENT THEIR INTEREST IN HAVING THEIR OWN KIDNEYS DONATED AFTER THEIR DEATH

Less than half (41%) who say they are very/somewhat likely to want their own kidneys donated after their death have told family members about their desires. Even fewer (31%) have signed an organ donor card; told close friends (18%); told a doctor (5%); or put it in their will (4%).

AWARENESS OF ORGAN DONOR CARDS IS VERY HIGH

Seventy-six percent of those interviewed say they have heard of organ donor cards. Even among those not likely to want their own kidneys donated, 76% had heard of the cards; almost two-thirds of blacks interviewed (65%) had heard of them.

A SMALL PROPORTION OF THOSE AWARE OF ORGAN DONOR CARDS HAVE SIGNED THEM

Only 18% of those aware of organ donor cards have signed one. Even among those likely to want their own kidneys donated, only 35% have signed a card.

MOST CORRECTLY ASSESS CONSEQUENCES OF SIGNING ORGAN DONOR CARDS

Virtually all aware of organ donor cards and virtually all who say they have signed an organ donor card believe correctly that the following two statements are false:

If you signed a card, someone can force you to give up one of your kidneys when they need one for a transplant."

Once you have signed a card, you cannot change your mind."

VERY HIGH LEVEL OF BELIEF THAT A CENTRAL FILE OF CARD SIGNERS EXIST

Among two-thirds of those aware of cards, and half of those who have signed cards believe, erroneously, that the following statement is true:

"There is a central file of people who have signed donor cards which is made available to doctors or others who are trying to locate a kidney donor."

ABOUT ONE-THIRD BELIEVE THERE ARE KIDNEY BANKS, AS THERE ARE BLOOD BANKS

About one-third (31%) of those aware of organ transplants believe, erroneously, that there are kidney banks, just as there are blood banks. This is equally true of those more or less likely to want to have their own kidneys donated. Those who have signed an organ donor card are less likely (23%) to believe this is true.

VIRTUALLY NO ONE BELIEVES THAT DONATED KIDNEYS ARE "ALWAYS" AVAILABLE, "OFTEN" AVAILABLE, OR "NEVER" AVAILABLE

Those respondents with an opinion split about equally between believing that donated kidneys are "sometimes" available (44%) or "rarely" available (41%).

THOSE WHO ARE LEAST LIKELY TO WANT THEIR OWN KIDNEYS DONATED AFTER THEIR DEATH ARE MOST LIKELY TO BELIEVE THAT KIDNEYS ARE "RARELY" AVAILABLE WHEN NEEDED

Those who have signed donor cards are more likely to say that kidneys are "sometimes" available, rather than "rarely" available (47% to 39%). This is true, as well, among those who are very/somewhat likely to want their own kidneys donated (49% say "sometimes" available; 38% say "rarely" available).

However, among those who say they are not very/not at all likely to want their own kidneys donated, only 36% say that they think donated kidneys are "sometimes" available, with 46% saying they are "rarely" available.

VIRTUALLY NO ONE BELIEVES THAT KIDNEY TRANSPLANTS EITHER HAVE LITTLE OR NO EFFECT ON THE RECIPIENT'S LIFE, OR THAT THEY MIGHT SHORTEN THAT PERSON'S LIFE

Even among those who say they are not very/not at all likely to want their own kidneys donated after their death, no more than 1 or 2 percent chose either of these two responses as characterizing the effects of kidney donation on the person receiving a kidney transplant.

MORE BELIEVE THAT A KIDNEY TRANSPLANT CAN "EXTEND THAT PERSON'S LIFE SUBSTANTIALY" THAN THAT IT "MIGHT OR MIGHT NOT EXTEND THAT PERSON'S LIFE"

When presented with four possible effects of a kidney transplant on a recipient, about half of all those surveyed who are aware of transplant chose the response: "can extend that person's life substantially", and another 42% chose the response "might or might not extend that person's life".

As expected, more of those who signed an organ donor card (61%), and more of those who are very/somewhat likely to want their own kidneys donated (60%) chose the response: "can extend that person's life substantially".

Those who are not very/not at all likely to want their own kidneys donated are significantly less likely than others to choose the response "can extend that person's life substantially" (40%), and significantly more likely than others to choose the response "might or might not extend that person's life" (46%).



APPENDIX 17-B
POTENTIAL ORGAN DONOR SURVEY

POTENTIAL ORGAN DONOR SURVEY
GALLUP POLL

1. Some people choose to donate their kidneys, hearts, livers, and other organs upon their death to others who need organ transplant operations. Before now have you ever heard about organ transplantation?

(CIRCLE ONE)

YES 01
NO 02

2. The Uniform Anatomical Gifts Act permits an individual to sign a card donating his or her organs in case of death. Have you ever heard about or received information concerning organ donation?

(CIRCLE ONE)

YES 01
NO 02 (SKIP TO Q.5)

3. Before today, from what sources have you learned about organ donations? (DO NOT READ, CIRCLE ALL THAT APPLY)

(CIRCLE ALL THAT APPLY)

DOCTORS OR NURSES 01
TELEVISION 02
NEWSPAPERS AND MAGAZINES 03
RADIO 04
FRIENDS 05
LECTURES 06
BROCHURES AND PAMPHLETS 07
OTHER (INCLUDES DON'T KNOW)..... 08

4. Do you currently carry an organ donor card?

(CIRCLE ONE)

YES 01 (SKIP TO Q.6)

NO 02

5. Would you, if asked, be prepared to sign and carry an organ donor card?

(CIRCLE ONE)

YES 01

NO 02

6. If you had to make the decision, would you donate the organs of a relative who had just died?

(CIRCLE ONE)

YES 01

NO 02

7. If you were to die suddenly, do you think that your family would give permission for the removal of any of your organs for transplantation?

(CIRCLE ONE)

YES 01

NO 02

8. Next, I would like to find out which, if any, of the following organs you would be willing to donate. Would you be willing to donate...

(CIRCLE YES OR NO FOR EACH ITEM)

	<u>YES</u>	<u>NO</u>
a. KIDNEYS	01	02
b. CORNEAS	01	02
c. HEART	01	02
d. LIVER	01	02
e. LUNGS	01	02
f. PANCREAS	01	02
g. SKIN	01	02
h. WHOLE BODY	01	02

9. Do you feel that if someone signs an organ donor card his or her decision should have to be formally approved by his next-of-kin when he dies?

(CIRCLE ONE)

YES	01
NO	02

10. If the next-of-kin disapproves do you feel that their disapproval should override the potential donor's wishes as expressed on any organ donor card?

(CIRCLE ONE)

YES	01
NO	02

11. Do you feel that the next-of-kin should be allowed to donate the organs of relatives who have recently died but have not signed an organ donor card?

(CIRCLE ONE)

YES 01

NO 02

12. Do you feel that doctors should have the power to remove organs from people who have recently died but have not signed an organ donor card without consulting their next-of-kin?

(CIRCLE ONE)

YES 01

NO 02

13. Brain death is considered to occur when brain activity stops, although it is possible to continue heartbeat and respiration by artificial means. State laws may use brain death as the legal definition of death and will allow the removal of organs for transplantation, such as the heart, from persons pronounced dead on this basis. Do you feel that brain death should be used as the legal definition of death?

(CIRCLE ONE)

YES 01

NO 02

14. Do you feel that it is all right to remove organs for transplantation upon declaration of brain death?

(CIRCLE ONE)

YES 01

NO 02

CHAPTER 18

AN ANALYSIS OF IN-HOSPITAL DEATHS AS AN
INDICATOR OF DONOR AVAILABILITY

Diane L. Manninen, Ph.D.
Research Scientist
Health and Population Study Center
Battelle Human Affairs Research Centers
4000 N.E. 41st Street
Seattle, Washington 98105

A. INTRODUCTION

One major objective of the National Heart Transplantation Study was to estimate the potential availability of donor hearts. The approach used in estimating organ availability has involved producing a range of estimates based upon various data sources. These figures range from maximum estimates based on the total number of hearts available in the U.S. each year considering only the medical selection criteria imposed on heart donors, to much lower estimates based on the number which are likely to be available through existing organ procurement networks.

This chapter presents estimates of the availability of hearts considering only medical selection criteria. These estimates are derived from data on in-hospital deaths obtained from the National Hospital Discharge Survey (NHDS). Estimates of the availability of organs through existing organ procurement networks are reported in another chapter of this report (see Chapter 19).

As discussed in detail in Chapter 15, there are several problems which are encountered in the identification of potential organ donors. The first, and by far the most restrictive factor limiting the potential supply of hearts for transplantation, is the stringent set of medically-related selection criteria. Since the donor heart must be beating at the time of removal, all cardiac donors must meet an acceptable definition of brain death (Bernat et al., 1981; 1982; President's Commission, 1981; Capron and Lynn, 1982). In addition to the brain death criterion, each potential heart donor must meet several other criteria which serve to further reduce the number of

available organs. These include age, cause of death, and absence of other diseases and infections.

The advantage of using the National Hospital Discharge Survey data, rather than national mortality data, in estimating organ availability is that the Hospital Discharge Survey data provide information on in-hospital deaths. The data file also contains information on patient characteristics which are necessary in determining whether or not a particular patient is a potential heart donor. More specifically, the data file contains both demographic (i.e., age, sex) and medical (i.e., primary and secondary diagnoses) variables which are useful in excluding patients as potential organ donors.

It should, of course, be recognized that estimates of organ availability based on the National Hospital Discharge Survey data represent maximum estimates of the supply of donor organs. This is true for two reasons. First, a particular patient may have additional contraindications to heart transplantation that are not reported on the hospital record. Indeed, patients are carefully evaluated as potential organ donors on a case-by-case basis, considering many factors (such as heart function on arrival at hospital and drugs administered in the last 24 hours) that are not contained on the HDS data file. Second, not all potential heart donors (and/or their next-of-kin) will provide the necessary consent for the removal of the heart and other organs for transplantation. While little can be done to solve the first problem, the second problem can be overcome by modifying the estimates of organ availability based on the willingness of individuals to donate organs.

Thus, in this chapter, two sets of estimates are presented. The first are estimates of the number of individuals who die in hospitals in the U.S. each year who meet the strict medical selection criteria imposed on heart donors (based solely on contraindications reported on the Hospital Discharge Survey data). The second are estimates of the number of these individuals who might be expected to actually donate organs (based on the results of a survey of public attitudes toward organ donation).

The estimates presented in this discussion are based on analysis of the National Hospital Discharge Survey data for the years 1979 through 1981--the most recent three years for which data are available. While data for a single year are likely to be suitable for purposes of arriving at estimates of donor availability, data from several years are used to determine the stability of the estimates. Data from two previous years--1977 and 1978--were also analyzed. However, there is a serious problem associated with using data from these earlier years. The 1977 and 1978 data were coded using the 8th revision of the International Classification of Diseases (ICDA-8-REV), while the 1979-1981 data were coded using the 9th revision (ICD-9-CM).

Consequently, estimates based on the 8th revision are not entirely consistent with those based on the 9th revision. More specifically, the 9th is more detailed than the 8th revision. The much more broadly defined disease categories of the ICDA-8-REV coding scheme means that more individuals are excluded from consideration as potential heart donors. As a result, the estimates of donor availability are much lower for 1977 and 1978 than for subsequent years. Since more

detailed information on diseases will yield more accurate estimates of donor availability, only data for the most recent years are presented here.

B. DATA AND METHODS

Two separate data sources were used for the analysis. These include the National Hospital Discharge Survey and the Potential Organ Donor Survey. The National Hospital Discharge Survey is conducted by the National Center for Health Statistics. The data file contains information on a sample of patients discharged from short-stay hospitals in the U.S. each year. The Potential Organ Donor Survey is a survey of public attitudes toward organ donation. The survey was conducted by the Gallup Organization, Inc. specifically for the National Heart Transplantation Study. These two data sets, and the methods used in their analyses, are described in greater detail below.

1. THE NATIONAL HOSPITAL DISCHARGE SURVEY DATA

A description of the National Hospital Discharge Survey data can be found in several publications from the National Center for Health Statistics (see Haupt, 1983:10). While the data actually vary somewhat from year-to-year, the description of the 1982 data is provided here. If desired, appropriate data descriptions for each year can be obtained directly from the NCHS.

The National Hospital Discharge Survey (NHDS) encompasses patients discharged from short-stay hospitals, exclusive of military and Veterans Administration hospitals located in the 50 States and the District of Columbia. Only hospitals with six or more beds and an

average length of stay of less than 30 days for all patients are included in the survey. Discharges of newborn infants are excluded from consideration here.

The universe of the 1982 survey consisted of 6,965 short-stay hospitals contained in the 1963 Master Facility Inventory of Hospitals and Institutions. New hospitals were sampled for inclusion in the survey in 1972, 1975, 1977, 1979, and 1981. In all, 550 hospitals were sampled in 1982. Of these hospitals, 71 refused to participate, and 53 were out of scope. The 426 participating hospitals provided approximately 214,000 abstracts of medical records.

a. Sample Design. All hospitals with 1,000 or more beds in the universe of short-stay hospitals were selected with certainty in the sample. All hospitals with fewer than 1,000 beds were stratified, the primary strata being 24 size-by-region classes. Within each of these 24 primary strata, the allocation of the hospitals was made through a controlled selection technique so that hospitals in the sample would be properly distributed with regard to type of ownership and geographic division. Sample hospitals were drawn with probabilities ranging from certainty for the largest hospitals to 1 in 40 for the smallest hospitals.

Sample discharges were selected within the hospitals using the daily listing sheet of discharges as the sampling frame. These discharges were selected by a random technique, usually on the basis of the terminal digit or digits of the patient's medical record number, a number assigned when the patient was admitted to the hospital. The within-hospital sampling ratio for selected sample

discharges varied inversely with the probability of selection of the hospital.

b. Data Collection and Estimation. The sample selection and the transcription of information from the hospital records for abstract forms were performed by the hospital staff or by representatives of the National Center for Health Statistics or both. The data were abstracted from the face sheets of the medical records. All discharge diagnoses and procedures were listed on the abstract in the order of the principal one, or the first-listed one if the principal one was not identified, followed by the order in which all other diagnoses or procedures were entered on the face sheet of the medical record.

Statistics produced by the National Hospital Discharge Survey are derived by a complex estimation procedure. The basic unit of estimation is the sample inpatient discharge abstract. The estimation procedure used to produce essentially unbiased national estimates in the National Hospital Discharge Survey has three principal components: inflation by reciprocals of the probabilities of sample selection, adjustment for nonresponse, and ratio adjustment to fixed totals (see Haupt, 1983; Sirken, 1967; Witkin, 1967).

c. Coding of the Data. Since 1979, coding of medical data for patients hospitalized was done according to the International Classification of Diseases, 9th Revision, Clinical Modification (ICD-9-CM) (see HCFA, 1980). For prior years, the data were coded according to the International Classification of Diseases, 8th Revision (ICDA-8-REV) (see NCHS, 1962). Up to seven diagnoses and four procedures were coded for each discharge.

The discharge diagnoses comprise one or more diseases or injuries (or some factor that influences health status and contact with health services which is not itself a current illness or injury) listed by the attending physician in the medical record of a patient. In the NHDS all discharge (or final) diagnoses for patients discharged from the inpatient services of short-stay hospitals are transcribed in the order of the principal one (or the first-listed one if the principal one was not identified) followed by the order in which all other diagnoses are entered on the face sheet of the medical record. Each sample discharge is assigned a maximum of seven, five-digit codes. The number of principal or first-listed diagnoses is equivalent to the number of discharges.

2. THE POTENTIAL ORGAN DONOR SURVEY

Information regarding the willingness of individuals to donate organs for transplantation was obtained by a telephone survey of a national probability sample of 2,056 respondents (1,017 men and 1,039 women) 18 years of age or older. The survey was conducted by the Gallup Organization, Inc., specifically for the National Heart Transplantation Study. The primary purpose of the survey was to obtain information regarding attitudes toward organ donation in general, and in particular, to determine the willingness of individuals to donate hearts for transplantation.

a. Sample Design. The Gallup national telephone sample is derived from the national probability sample of locations drawn for the company's continuing national surveys. The population was first arrayed in order by city size and geographically by states and

regions. From this ordering a single stage sample of locations was drawn with the probability of selection proportional to the population size of locations.

The telephone numbers obtained from the national sample of households drawn in current personal interview surveys form the basis for the generation of a sample of telephone numbers. In effect, each number from a current national sample of households selects an exchange and a bank of 100 numbers. This procedure provides a national sample of telephone exchanges with representation proportional to the incidence of residential listings by exchanges and a sample of exchanges which is up to date in terms of all working numbers both listed and unlisted.

Since the exchanges are selected from the locations drawn with stratification by region, city size, and rural-urban, the net effect is a similar stratification of exchanges. Numbers for telephone samples are randomly generated in each exchange and bank of numbers so selected.

Within the household an interview is sought with the youngest man 18 years or older who is at home. If no man is at home, an interview is sought with the oldest woman at home. This method of selection within the household has been developed empirically to produce an age distribution by men and women separately which compares closely with the age distribution of the population. Only one interview per household is conducted.

The sampling procedure is designed to produce an approximation of the U.S. civilian adult population living in

telephone households, excluding those persons living in institutions such as prisons or hospitals or those living on military bases. Survey data can be applied to this population for the purpose of projecting percentages to numbers of people.

b. Survey Protocol. The survey was conducted by the Gallup Telephone Facility from October 14 through November 13, 1983. Interviews were conducted at times when adults, in general, are most likely to be at home (i.e., on weekends, or if on weekdays, after 6:00 PM). For each randomly generated number up to three calls were made within a two day period to complete an interview before substituting another number.

c. Survey Instrument. Respondents were asked a series of 14 questions focusing on their attitudes toward organ donation. In addition to information on age, sex, race, and various other social and demographic characteristics, respondents were asked whether or not they would be willing to donate specific organs (kidneys, hearts, corneas, livers, lungs, pancreata). Respondents were also asked questions concerning their willingness to donate the organs of his/her spouse and children. The results of this survey are described in greater detail in Chapter 17.

3. METHODS

As noted in Chapter 15, there are many problems which are encountered in the identification of potential heart donors. Experience has shown that organs from male donors under the age of 35 and female donors under the age of 40 have the greatest likelihood of resulting in a successful transplant (Baumgartner et al., 1979;

Copeland and Stinson, 1979). In most cases death is the result of traumatic head injuries (i.e., blunt trauma, gunshot wound) or cerebrovascular accidents. An acceptable cardiac donor must have no history of cardiac disease or cardiac abnormalities and have no evidence of thoracic or cardiac trauma, including intracardiac drug administration during resuscitative procedures. A potential heart donor must have no history of transient, severe hypotension after injury. A donor must also be free of malignancy and infection at the time of death. A list of variables relevant to the selection of heart donors is presented in Table 18-1.

The procedures used in estimating the availability of donor hearts from the Hospital Discharge Survey Data were relatively straightforward. First, all patients who were discharged from the hospital dead were selected for further analysis. Next, information regarding the age and sex of patients was used to reduce the number of potential heart donors. Only females 5 to 39 years of age and males 5 to 34 years of age were identified as potential donors. Estimates, however, were also made in which children 5 to 9 years of age were excluded from consideration as potential heart donors. Finally, specific illnesses and diseases which serve as contraindications to heart transplantation were identified and used to further reduce the number of potential heart donors. A complete set of the conditions (and their respective ICD.9.CM codes) which were considered to be contraindications to heart donation is contained in Appendix 18-A.

A similar list of conditions and ICDA-8-REV codes was prepared and applied to the 1977 and 1978 Hospital Discharge Survey

Table 18-1
Variables Relevant to the Selection of Heart Donors

-
-
- 1) DONOR AGE/SEX
 - 2) CAUSE OF DEATH
 - . trauma
 - . CVA
 - . cardiopulmonary arrest
 - . drug overdose
 - . brain tumor
 - . other
 - 3) TYPE OF DEATH
 - . brain death
 - . cardiac death
 - 4) HEART FUNCTION ON ARRIVAL AT HOSPITAL
 - . absent
 - . pharmacological support
 - . normal
 - 5) ASSOCIATED DISEASE
 - . congenital cardiac disease
 - . valvular cardiac disease
 - . atherosclerotic cardiac disease
 - . peripheral arteriosclerosis
 - . diabetes
 - . hypertension
 - . sepsis
 - . malignancy
 - . chronic lung disease
 - . other
 - 6) DRUGS ADMINISTERED IN LAST 24 HOURS
 - . isuprel
 - . aramine
 - . intropin
 - . epinephrine
 - . other inotropic agents
 - . mannitol
 - 8) CHEST X-RAY RESULTS
 - . widened mediastinum
 - . pneumothorax
 - . rib fractures
 - . pneumonia

Table 18-1 (Continued)
Variables Relevant to the Selection of Heart Donors

9) OTHER CONTRAINDICATIONS

- . sustained cardiac arrest
- . intracardiac injections during resuscitation
- . history of transient, severe hypotension after injury
- . severe mediastinal trauma
- . murmurs on physical exam
- . ECG abnormalities

10) RESTRICTED CONSENT FOR ORGAN DONATION

- . kidneys
 - . corneas
 - . heart
 - . liver
 - . lungs
 - . pancreas
 - . skin
 - . body
-

Data. However, because many of the disease categories were much more broadly defined under the ICDA-8-REV coding scheme, larger numbers of patients were excluded from consideration as potential organ donors. As a result, estimates of the availability of donor hearts for these years are considerably lower than estimates for the years using the more specific ICD-9-CM codes. Thus, although analyses were performed using 5 years of NHDS data, data for only 3 years (1979-1981) are reported here.

These estimates of the availability of donor hearts based on the number of in-hospital deaths were then modified to reflect the willingness of individuals to donate organs. Since approximately 53% of those interviewed indicated that they would be willing to donate the organs of a relative who had just died (see Chapter 17), the number of potential cardiac donors was further reduced to yield more realistic estimates of donor availability.

C. RESULTS

The methods described above were applied to the 1979-1981 National Hospital Discharge Survey data. The estimated availability of donor hearts by age and sex for these three years is presented in Tables 18-2 through 18-4. A comparison of the three tables shows that the total number of donors is approximately 16,000 (ranging from 13,896 in 1980 to 17,936 in 1981). This represents less than 2% of the nearly one million in-hospital deaths that occurred in each of these three years (see Table 18-5).

Table 18-2
Estimated Availability of Donor Hearts By Age and Sex,
Based on 1981 In-Hospital Deaths

<u>AGE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>TOTAL</u>
5-9	728	494	1,222
10-14	345	182	527
15-19	3,093	1,144	4,237
20-24	1,849	1,300	3,149
25-29	3,293	1,884	5,177
30-34	1,601	886	2,487
35-39	**	1,137	<u>1,137</u>
TOTAL			17,936

**Outside donor age limit.

Table 18-3
 Estimated Availability of Donor Hearts By Age and Sex,
 Based on 1980 In-Hospital Deaths

<u>AGE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>TOTAL</u>
5-9	615	672	1,287
10-14	221	485	706
15-19	2,059	579	2,638
20-24	2,440	531	2,971
25-29	2,022	1,147	3,169
30-34	1,685	1,285	2,970
35-39	**	155	<u>155</u>
TOTAL			13,896

**Outside donor age limit.

Table 18-4
Estimated Availability of Donor Hearts By Age and Sex,
Based on 1979 In-Hospital Deaths

<u>AGE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>TOTAL</u>
5-9	306	295	601
10-14	525	520	1,045
15-19	2,890	1,301	4,191
20-24	1,824	1,005	2,829
25-29	2,597	1,637	4,234
30-34	1,559	1,045	2,604
35-39	**	718	<u>718</u>
TOTAL			16,222

**Outside donor age limit.

Table 18-5
Number of Potential Heart Donors as a Percentage
of All In-Hospital Deaths, 1979-1981*

	<u>TOTAL NUMBER OF IN-HOSPITAL DEATHS</u>	<u>NUMBER OF POTENTIAL HEART DONORS</u>	<u>PERCENTAGE OF IN-HOSPITAL DEATHS</u>
1979	946,620	16,222	1.7%
1980	991,630	13,896	1.4%
1981	999,489	17,936	1.8%

*Data derived from the National Hospital Discharge Survey.

In making the above estimates, males 5 to 34 years of age and females 5 to 39 years of age were considered to be potential organ donors. If, however, children from 5 to 9 years of age are also excluded from consideration, the potential number of organ donors is further reduced to approximately 15,000 (ranging from 12,609 in 1980 to 16,714 in 1981).

As discussed earlier, estimates of donor availability based solely on the number of in-hospital deaths will tend to overestimate the number of available organs. One reason is that many of the factors relevant to the selection of donor hearts (as summarized in Table 18-1) are not reported in the National Hospital Discharge Survey. To the extent that some patients will fail to meet specific selection criteria not reported in the NHDS data, these estimates will continue to overestimate donor availability.

Another reason that the estimates based on in-hospital deaths overestimate donor availability is that not all potential donors (or their next-of-kin) will consent to donate organs for transplantation. In a survey of potential organ donors conducted as part of this study, 53% of respondents indicated that they would be willing to donate the organs of a relative who had just died (see Chapter 17). Since it is common practice to require family consent even if a person has signed an organ donor card (Overcast et al., 1984), this percentage can be used to adjust the figures presented in Tables 18-2 through 18-4 to provide more realistic estimates of donor availability. As can be seen from Table 18-6, at most only 7,000 to 9,000 hearts would be available each year for transplantation.

Table 18-6
The Estimated Availability of Donor Hearts Based on the
Number of In-Hospital Deaths, and Modified by the
Willingness of Individuals to Donate Organs

<u>YEAR</u>	<u>ESTIMATE BASED ON IN-HOSPITAL DEATHS</u>	<u>ESTIMATE MODIFIED BY WILLINGNESS TO DONATE ORGANS*</u>
1979	16,222	8,598
1980	13,896	7,365
1981	17,936	9,506

*Based on survey results presented in Chapter 17. Response to Question 6.

D. CONCLUSION

In this chapter, hospital discharge survey data were used to estimate the maximum number of donor hearts that would be available in the U.S. each year considering only the medical selection criteria imposed on heart donors. These figures were then modified using data regarding the willingness of individuals to donate organs for transplantation.

Based on this analysis, it is clear that there is a maximum number of hearts that are available each year for transplantation. Considering current selection criteria (and patient information from the National Hospital Discharge Survey) the number does not exceed approximately 16,000. If children 5 to 9 years of age are excluded as potential heart donors, the number is further reduced to approximately 15,000. Moreover, since only 53% of individuals indicate a willingness to donate the organs of a relative who had just died, perhaps a more realistic estimate is that at most only 7,000 to 9,000 hearts are available each year for transplantation.

It should, of course, be recognized that many actions taken to save lives (i.e., lower highway speed limits, stiffer penalties for drunk driving, motorcycle helmet laws, seat belt laws) may also serve to reduce the availability of donor organs. Although, at least in the case of seat belt laws, there is evidence that this need not be the case. Thompson and associates (1983) argue that although legislation requiring the wearing of seat belts in automobiles has reduced traffic injuries and deaths, little impact has been seen in the number of kidneys harvested in the United Kingdom.

Another way to increase organ availability would be to change the donor selection criteria. Imposing less strict selection criteria upon potential heart donors (i.e., increasing the allowable age or accepting donors with other medical contraindications) would increase organ availability. Accepting less than ideal organs for transplantation, however, could also result in reduced transplant recipient survival rates.

Thus, even by increasing the willingness of individuals to donate organs for transplantation--whether by public education campaigns, improved organ procurement networks, or through a policy of presumed consent--it is unlikely that more than 15 to 16 thousand organs would be available each year for transplantation. It should, of course, be emphasized that these figures represent maximum estimates given current selection criteria. Since not all contraindications to organ donation are reported on hospital discharge forms, the actual number of suitable donors is likely to be even lower.

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APPENDIX 18-A

CONTRAINDICATIONS TO ORGAN DONATION-HEART*
(ICD.9.CM Codes)

*List of contraindications prepared with the assistance
of Christopher R. Blagg, M.D.

Diseases of the Circulatory System

Acute Rheumatic Fever (390-392)
Chronic Rheumatic Fever (393-398)
Hypertensive Disease (401-405)
Ischemic Heart Disease (410-414)
Diseases of Pulmonary Circulation (415-417)
Other Forms of Heart Disease (420-429)
Diseases of Arteries, Arterioles, and Capillaries (440-448, except 443.0, 443.89, and 408)
Phlebitis and Thrombophlebitis (451)
Other Venous Embolism and Thrombosis (453)

Neoplasms

Malignant Neoplasm of Lip, Oral Cavity and Pharynx (140-149)
Malignant Neoplasm of Digestive Organs and Peritoneum (150-159)
Malignant Neoplasm of Respiratory and Intrathoracic Organs (160-165)
Malignant Neoplasm of Bone, Connective Tissue, Skin, and Breast (170-175)
Malignant Neoplasm of Genitourinary Organs (179-189)
Malignant Neoplasm of Other and Unspecified Sites (190-199, except 191)
Malignant Neoplasm of Lymphatic and Hematopoietic Tissue (200-209)
Benign Neoplasm of the Heart (212.7)
Carcinoma in Situ (230-234)
Neoplasms of Uncertain Behavior (235-238)
Neoplasms of Unspecified Nature (239)

Infectious and Parasitic Diseases

Intestinal Infectious Diseases (001-009)
Tuberculosis (010-108)
Zoonotic Bacterial Diseases (020-027)
Other Bacterial Diseases (030-041)
Poliomyelitis and Other Non-Arthropod-Borne Viral Diseases of the Central Nervous System (045-049)

Abscess of Anal and Rectal Regions (566)
Peritonitis (567)
Abscess of Intestine (569.5)
Abscess of Liver (572.0)
Portal Pyemia (572.1)
Other Disorders of Liver (573)
Cholelithiasis (574, except 574.2 and 574.5)
Acute Cholecystitis (575.0)
Other Cholecystitis (575.1)
Cholangitis (576.1)
Acute Pancreatitis (577.0)
Chronic Pancreatitis (577.1)

Diseases of the Genitourinary System

Acute Glomerulonephritis in Diseases Classified Elsewhere (580.81)
Nephrotic Syndrome in Diseases Classified Elsewhere (581.81)
Chronic Glomerulonephritis in Diseases Classified Elsewhere (582.81)
Nephritis and Nephropathy, Not Specified as Acute or Chronic, in Diseases Classified Elsewhere (583.81)
Infections of Kidney (590)
Cystitis (595)
Urethritis, Not Sexually Transmitted, and Urethral Syndrome (497)
Urinary Tract Infection, Site Not Specified (599.0)
Inflammatory Diseases of Prostate (601)
Infected Hydrocele (603.1)
Orchitis and Epididymitis (604)
Other Inflammatory Disorders of Penis (607.2)
Seminal Vesiculitis (608.0)
Other Inflammatory Disorders of Male Genital Organs (608.4)
Disorders of Male Genital Organs in Diseases Classified Elsewhere (608.81)

Inflammatory Disease of Breast (611.0)
Fat Necrosis of Breast (611.3)
Inflammatory Disease of Female Pelvic Organs (614-616)

Complications of Pregnancy, Childbirth, and Puerperium

- Spontaneous Abortion, with Infection (634.0 and 634.7)
- Legally Induced Abortion, with Infection (635.0 and 635.7)
- Illegally Induced Abortion, with Infection (636.0 and 636.7)
- Unspecified Abortion, with Infection (637.0 and 637.7)
- Failed Attempted Abortion, with Infection (638.0 and 638.7)
- Genital Tract and Pelvic Infection Following Abortion and Ectopic and Molar Pregnancies (639.0)
- Asymptomatic Bacteriuria in Pregnancy (646.5)
- Infections of Genitourinary Tract in Pregnancy (646.6)
- Infectious and Parasitic Conditions in the Mother Classifiable Elsewhere, but Complicating Pregnancy, Childbirth, or the Puerperium (647)
- Other Current Conditions in the Mother Classifiable Elsewhere, but Complicating Pregnancy, Childbirth, or the Puerperium (648.0, 648.5, and 648.6 only)
- Infection of Amniotic Cavity (658.4)
- Major Puerperal Infection (670)
- Venous Complications in Pregnancy and the Puerperium (671, except 671.0 and 671.1)
- Pyrexia of Unknown Origin During the Puerperium (672)
- Obstetrical Pyemic and Septic Embolism (673.3)
- Other and Unspecified Complications of the Puerperium, Not Classified Elsewhere (674.3 and 674.8 only)
- Infection of the Breast and Nipple Associated with Childbirth (675)

Diseases of the Skin and Subcutaneous Tissue

- Infections of Skin and Subcutaneous Tissue (680-686, except 685.1)
- Hidradenitis (705.83)
- Chronic Ulcer of Skin (707)

Diseases of the Musculoskeletal System and Connective Tissue

- Diffuse Diseases of Connective Tissue (710)
- Arthropathy Associated with Infections (711)
- Arthropathy Associated with Other Disorders Classified Elsewhere (713.2 and 713.7 only)

Other Disorders of Synovium, Tendon, and Bursa (727.89)

Infective Myositis (728.0)

Osteomyelitis, Periostitis, and Other Infections Involving Bone (730, except 730.7)

Osteitis Deformans and Osteopathies Associated with Other Disorders Classified Elsewhere (731, except 731.0 and 731.2)

Congenital Anomalies

Bulbus Cordis Anomalies and Anomalies of Cardiac Septal Closure (745)

Other Congenital Anomalies of Heart (746)

Other Congenital Anomalies of Circulatory System (747, except 747.5 and 747.81)

Multiple Congenital Anomalies, So Described (759.7)

Other Specified Anomalies (759.8)

Symptoms, Signs, and Ill-Defined Conditions

Pyrexia of Unknown Origin (780.6)

Symptoms Involving Cardiovascular System (785.3-785.5 only)

Bacteremia, Unspecified (790.7)

Viremia, Unspecified (790.8)

Nonspecific Abnormal Results of Function Studies--Cardiovascular (794.31 and 794.39 only)

Cachexia (799.4)

Injury and Poisoning

Traumatic Pneumothorax and Hemothorax (860, except 860.2 and 860.4)

Injury to Heart and Lung (861)

Injury to Other and Unspecified Intrathoracic Organs (862, except 862.0, 862.2, and 862.8)

Injury to Liver with Open Wound into Cavity (864.1)

Injury to Spleen with Open Wound into Cavity (865.1)

Injury to Kidney with Open Wound into Cavity (866.1)

Injury to Pelvic Organs with Open Wound into Cavity (867.1, 867.3, 867.5, 867.7, and 867.9 only)

Injury to Other Intra-Abdominal Organs with Open Wound into Cavity (868.1)

Internal Injury to Unspecified or Ill-Defined Organs with Open Wound into Cavity (869.1)

Injury to Blood Vessels of Thorax (901)

Posttraumatic Wound Infection, Not Elsewhere Classified (958.3)

Mechanical Complication of Cardiac Device, Implant, and Graft (996.0)

Cardiac Complications (997.1)

Respiratory Complications (997.3)

Late Amputation Stump Complication--Infection (997.62)

Postoperative Infection (998.5)

Complications of Medical Care, Not Otherwise Classified (999.0, 999.3, and 999.8 only)

CHAPTER 19

DONOR AVAILABILITY: AN ANALYSIS OF ORGAN PROCUREMENT PROGRAM DATA

Diane L. Manninen, Ph.D
Research Scientist
Health and Population Study Center
Battelle Human Affairs Research Centers
4000 N.E. 41st Street
Seattle, Washington 98105

We would like to acknowledge the efforts of the 80 organ procurement programs that participated in the Organ Procurement Program Survey. We would also like to acknowledge the assistance that we received from each of the 6 participating heart transplant programs in the development of the data collection form. Dr. Stuart W. Jamieson (Stanford University Medical Center) was particularly helpful in this regard.



A. INTRODUCTION

The number of available donor organs is a key factor in determining the number of heart transplants that are performed each year. Thus, providing a reasonable estimate of the potential availability of donor hearts was one of the major objectives of the National Heart Transplantation Study. The approach used in estimating organ availability has involved producing a range of estimates based upon various data sources. These figures range from maximum estimates based on the total number of hearts available in the U.S. each year considering only the medical selection criteria imposed on heart donors, to much lower estimates based on the number that are likely to be available through existing organ procurement networks.

Clearly, the number of suitable hearts available for transplantation is limited. Approximately one-third of the patients awaiting transplantation at the Stanford University Medical Center and the Medical College of Virginia die before a suitable heart becomes available (Schroeder, 1979; Thomas and Lower, 1978). Strict medical selection criteria, limitations in the long distance transportation of cadaveric hearts, and the extensiveness of networks established for the procurement of donor organs are the major factors to be considered in estimating the potential supply of donor hearts.

At present no network exists solely for the procurement of hearts; however, numerous organ procurement programs currently exist for the procurement of kidneys and other organs. The largest such network is the United Network for Organ Sharing (UNOS) which was previously operated by the South-Eastern Organ Procurement Foundation (SEOPF),

and has now been incorporated as a separate entity. At the present time, UNOS provides computer-matching for 136 of the 155 transplant centers in the United States. UNOS is able to call more than 4,500 potential kidney recipients in 42 states. Although the UNOS system is not currently set up to handle hearts as efficiently as kidneys, this source of information on the potential availability of donor hearts is readily available and could be used as a network for heart procurement.

Recent increases in the number of extrarenal organ transplants have made it necessary to find more efficient means of identifying, matching, and distributing the available organs for transplantation. One new system of matching available organs with recipients was developed by the North American Transplant Coordinators Organization (NATCO). This system, known as 24-ALERT, is a taped telephone message accessible from any telephone in the world. The system is updated daily and provides information to procurement and transplant coordinators and physicians, concerning the immediate needs for extrarenal transplantation. Different categories for the status of a patient's condition have been established to identify patients with the most crucial need for organs. Since its implementation in September 1982, the 24-ALERT system has been directly responsible for the recovery of 292 organs and their subsequent transplantation by 25 different transplant centers in the United States and Canada (Broznick, 1984).

In order to estimate the number of donor hearts which would be available each year through the existing network of organ procurement programs, it was necessary to obtain information on the characteristics

of individuals who donate kidneys and other organs to determine the proportion that would be potential heart donors (that is, those that meet the strict medical selection criteria imposed on heart donors). Without a doubt, organ banks and organ procurement programs represent the best source of this information. Indeed, most organ procurement programs routinely collect such data for their own records. However, the data collected varies considerably from program to program. The organ procurement agencies associated with the South-Eastern Organ Procurement Foundation, for example, collect very detailed information on both organ donors and organ recipients, as well as information on organ preservation techniques. Samples of the data collection forms used by SEOPF are presented in Appendix 19-A.

This chapter presents estimates of the availability of hearts through the existing network of programs which were established for the procurement of kidneys and other organs. These estimates are derived from information on 1,955 organ donors provided by 80 organ procurement programs across the U.S. The data, which were obtained specifically for the National Heart Transplantation Study, were collected over a period of 8 months. (Had time permitted, we ideally would have collected data for a period of one year.) Estimates of the maximum number of available hearts were derived from data on in-hospital deaths obtained from the National Hospital Discharge Survey (NHDS). These estimates, based solely on medical selection criteria, as well as estimates modified by the willingness of individuals to donate organs for transplantation, are reported in another chapter of this report (see Chapter 18).

B. DATA AND METHODS

1. DATA

Data for this analysis were obtained from a survey of 80 organ procurement programs over an 8 month period of time. For each organ donor, programs were asked to provide information which included age, sex, primary cause of death, and heart function on arrival at the hospital. Programs were also asked to provide information on infections, associated disease, and other contraindications to heart donation. Data on a total of 1,955 individuals who donated kidneys and other organs were collected and used to estimate the proportion of those organ donors that would have met the strict medical selection criteria imposed on heart donors. This information was then used to derive estimates of the number of donor hearts that would be available each year through the existing network of organ procurement programs.

a. Identification of Participating Organ Procurement Programs. An attempt was made to obtain the cooperation of all organ procurement programs in the data collection effort. Prior to beginning data collection, a list of all organ procurement programs in the United States was compiled from the International Organ and Tissue Retrieval Directory (Boven, 1980) and the 1981 telephone directory of South-Eastern Organ Procurement Foundation (SEOPF) and United Network for Organ Sharing (UNOS) members (SEOPF, 1981). Letters were sent to all organ procurement programs on this list requesting their participation in the study. A copy of this letter is attached as Appendix 19-B. In addition to determining their willingness to participate in a prospective data collection activity, the following information was requested:

- . number of organ donors in 1981
- . number of organs harvested in 1981 by type (kidneys, hearts, livers, pancreas, lungs)
- . membership in a large regional organ procurement program

Two mail follow-ups and a telephone follow-up were used to obtain a response from all programs. A copy of the data collection form used is attached as Appendix 19-C.

Initially 87 programs expressed a willingness to cooperate in the study. Seven of these programs failed even after repeated follow-up, to return any completed data collection forms. As a result, data were collected from a total of 80 organ procurement programs. Moreover, having begun data collection, seven of the participating procurement programs stopped submitting completed forms prior to the end of the 8-month data collection period (usually after 3 to 6 months of data collection).

A list of the 80 participating organ procurement programs is included as Appendix 19-D. Only a few organ procurement programs refused to take part in the study. In general, programs cited lack of time and/or insufficient staff as reasons for their refusal to participate. Those programs that chose not to participate in the study (as well as those programs that did not provide data for the entire 8 month period) are relatively small, averaging less than 40 donors per year. All of the very large organ procurement programs participated in data collection. In fact, some of the participating programs are large regional programs (e.g., New England Organ Bank). These programs provided data for several smaller programs. Thus, the

80 participating programs actually provided information for a total of approximately 145 individual programs (representing 90 to 95 percent of all organ donors in the U.S.).

b. Survey Protocol. The protocol for the administration of the organ procurement program survey consisted of three steps: (1) initial contact with organ procurement programs, (2) data collection and (3) data processing. As described above, letters were sent to all organ procurement programs in the U.S. requesting their participation in the study. Repeated mail and telephone follow-ups were used to obtain a response from all programs and to ensure that duplicate information was not received. All organ procurement programs which agreed to participate in the study were then sent a supply of data collection forms, postage-paid return envelopes, and instructions for completing the forms. The instructions for completing the organ procurement program data collection form are included as Appendix 19-E. Telephone calls were then made to all participating programs to confirm that the data collection materials had been received and to answer any questions regarding the survey protocol. Data collectors were also told to call if they had any questions in completing the data collection forms.

The data collection period began August 1, 1983 and ended March 31, 1984. Data collectors were instructed to record only information on donors that was readily available. Special tests or X-rays were not to be performed. Data collectors were encouraged to record information as soon as possible after each donor referral, if possible completing the form as part of their routine recordkeeping

activities. Data collectors were asked to begin a new data collection form for each month and to return completed forms on a monthly basis.

A log was used to monitor the progress of the data collection and coding. The log was updated as the data collection forms were returned by organ procurement programs. Each month follow-up telephone calls were made to remind programs that had not yet returned their forms to do so as soon as possible.

The completed data collection forms were coded and edited manually by an assigned survey specialist soon after they were received. If necessary, telephone calls were made to the organ procurement programs to obtain incomplete information or to clarify ambiguous responses. The data were then keypunched and 100% verified. Finally, a computer data file was created and the data were cleaned for analysis.

c. Survey Instrument. The organ procurement program data collection form that was used in the study is attached as Appendix 19-F. In an effort to minimize the time necessary for data collection, the form was designed so that organ procurement programs needed to record only one line of information for each organ donor. The specific data which were collected on each organ donor include:

- . date of death
- . age/sex
- . primary cause of death
- . type of death
- . heart function on arrival at hospital

- . associated disease
- . infections
- . drugs administered in past 24 hours
- . chest x-ray results
- . other contraindications
- . organs consented for donation
- . other (i.e., procedures used in obtaining permission for organ donation)

2. METHODS

There are many problems which are encountered in the identification of potential heart donors. Experience has shown that organs from male donors under the age of 35 and female donors under the age of 40 have the greatest likelihood of resulting in a successful transplant (Baumgartner et al., 1979; Copeland and Stinson, 1979). In most cases death is the result of traumatic head injuries (i.e., blunt trauma, gunshot wound) or cerebrovascular accidents. An acceptable cardiac donor must have no history of cardiac disease or cardiac abnormalities and have no evidence of thoracic or cardiac trauma, including intracardiac drug administration during resuscitation procedures. A potential heart donor must have no history of transient, severe hypotension after injury. A donor must also be free of malignancy and infection at the time of death. A list of variables relevant to the selection of heart donors is presented in Table 19-1.

Data on 1,955 organ donors, including the variables listed in Table 19-1, were obtained from the Organ Procurement Program Survey.

Table 19-1
Variables Relevant to the Selection of Heart Donors

-
- 1) DONOR AGE/SEX
 - 2) CAUSE OF DEATH
 - . trauma
 - . CVA
 - . cardiopulmonary arrest
 - . drug overdose
 - . brain tumor
 - . other
 - 3) TYPE OF DEATH
 - . brain death
 - . cardiac death
 - 4) HEART FUNCTION ON ARRIVAL AT HOSPITAL
 - . absent
 - . pharmacological support
 - . normal
 - 5) ASSOCIATED DISEASE
 - . congenital cardiac disease
 - . valvular cardiac disease
 - . atherosclerotic cardiac disease
 - . peripheral arteriosclerosis
 - . diabetes
 - . hypertension
 - . sepsis
 - . malignancy
 - . chronic lung disease
 - . other
 - 6) DRUGS ADMINISTERED IN LAST 24 HOURS
 - . isuprel
 - . aramine
 - . intropin
 - . epinephrine
 - . other inotropic agents
 - . mannitol
 - 7) CHEST X-RAY RESULTS
 - . widened mediastinum
 - . pneumothorax
 - . rib fractures
 - . pneumonia

Table 19-1 (Continued)
Variables Relevant to the Selection of Heart Donors

8) OTHER CONTRAINDICATIONS

- . sustained cardiac arrest
- . intracardiac injections during resuscitation
- . history of transient, severe hypotension after injury
- . severe mediastinal trauma
- . murmurs on physical exam
- . ECG abnormalities

9) RESTRICTED CONSENT FOR ORGAN DONATION

- . kidneys
 - . corneas
 - . heart
 - . liver
 - . lungs
 - . pancreas
 - . skin
 - . body
-

The procedures used in estimating the availability of donor hearts from these data were relatively straightforward. First, information regarding the age and sex of donors was used to reduce the number of potential heart donors. Only females 5 to 39 years of age and males 5 to 34 years of age were identified as potential heart donors (to date, only a few pediatric heart transplants have been performed). Next, donors who were known to have other contraindications to heart transplantation were excluded from consideration as potential heart donors. These contraindications include:

- . cardiopulmonary arrest listed as primary cause of death
- . cardiac death, rather than brain death, given as type of death
- . heart function on arrival at hospital--absent
- . donor was reported to have congenital cardiac disease, valvular cardiac disease, atherosclerotic cardiac disease, peripheral arteriosclerosis, diabetes, hypertension, sepsis, malignancy, or chronic lung disease
- . donor had an infection at time of death (i.e., systemic, pulmonary, CNS, abdominal, genitourinary, subcutaneous)
- . intropin or other inotropic agents administered in the past 24 hours
- . chest x-ray results indicating widened mediastinum, pneumothorax, rib fractures, or pneumonia
- . sustained cardiac arrest
- . intracardiac injections used during resuscitation
- . history of transient, severe hypotension after injury

- . severe mediastinal trauma
- . murmurs on physical exam
- . ECG abnormalities
- . a comment was made indicating that the heart was unacceptable for transplantation

Those organ donors that were reported to have none of the above contraindications were considered to be potential heart donors. The number of potential heart donors was then computed as a percentage of all organ donors. Finally, this percentage was used to estimate the number of donor hearts which are available each year through the existing network of organ procurement programs.

It should be recognized that while many of the above conditions are definite contraindications to heart donation (i.e., various cardiac diseases, cardiopulmonary arrest, malignancy, pneumonia), in the case of other conditions, this determination is less clear. For example, transient, severe hypotension after injury may not rule out a potential donor, if the donor is resuscitated and comes back immediately. Upon examination, a cardiologist may decide that a particular individual is an acceptable heart donor. Similarly, murmurs on physical exam or ECG abnormalities may not be definite contraindications to heart donation. Again, examination by a cardiologist would be necessary in order to make a decision regarding the acceptability of the heart for transplantation. Such decisions concerning the acceptability of potential heart donors can only be made on a case-by-case basis, through a thorough examination of the organ donor. Since it is impossible to make such decisions given the

available data on organ donors, for the purposes of this analysis, we consider these conditions to be contraindications to heart donation.

It should, however, also be noted that intropin administered in the past 24 hours may or may not be a contraindication to heart donation, depending upon the dosage administered. For example, if the dosage of intropin exceeded 10mg/kg per minute, or if lower dosages of the drug were administered for more than 24 hours, it would most likely be viewed as a contraindication to heart donation (Baumgartner, personal communication, 1984). Since information on dosage was not requested, separate estimates of donor availability were made including and excluding intropin as a contraindication. Both estimates are presented in the discussion of results. The actual number of available hearts is likely to fall somewhere between the two estimates.

C. RESULTS

Data were collected on a total of 1,955 organ donors (1,281 males and 674 females). The distribution of these organ donors by age and sex is shown in Table 19-2. As can be seen from the table, of these 1,955 organ donors, only 1,291 meet the age criterion imposed on heart donors (5-34 for males and 5-39 for females). Thus, these data indicate that considering only the age criterion, only two-thirds (66%) of all organ donors are potential heart donors.

1. CHARACTERISTICS OF POTENTIAL HEART DONORS

Not all of these 1,291 organ donors, however, are acceptable heart donors. Many exhibit one or more of the various contraindications to heart donation. The characteristics of those organ donors

Table 19-2
Number of Organ Donors By Age and Sex

AGE OF DONOR	ALL ORGAN DONORS			POTENTIAL HEART DONORS ³		
	¹ MALE	² FEMALE	TOTAL	¹ MALE	² FEMALE	TOTAL
0-4	64	58	122	0	0	0
5-9	33	26	59	33	26	59
10-14	62	44	106	62	44	106
15-19	233	85	318	233	85	318
20-24	254	86	340	254	86	340
25-29	176	64	240	176	64	240
30-34	120	58	178	120	58	178
35-39	88	50	138	0	50	50
40+	250	203	453	0	0	0
Don't Know	<u>1</u>	<u>0</u>	<u>1</u>	<u>0</u>	<u>0</u>	<u>0</u>
TOTAL	1281	674	1955	878	413	1291

¹Age criterion = 5-34 years.

²Age criterion = 5-39 years.

³Potential heart donors considering only the age criterion.

who satisfy the age criterion imposed on heart donors are summarized in Table 19-3. For over three-quarters (77%) of the donors, trauma was the primary cause of death. For 10.5% of the donors, cerebrovascular accident was indicated as the cause of death. Cardiopulmonary arrest--a contraindication to heart donation--was reported in only 2.9% of the cases.

Brain death was declared in 95.7% of the cases with cardiac death reported for only 4.2% of the donors. Heart function on arrival at the hospital was reported to be normal for 72.4% of the donors. Pharmacological support was indicated in 17.2% of the cases, and heart function was absent in only 7.0% of the donors. The percentage of donors who received specific drugs are also presented in Table 19-3. As the table clearly shows, intropin (59.1%) and mannitol (49.1%) were the most frequently administered drugs.

Table 19-4 presents the percent of organ donors who satisfy the age criterion imposed on heart donors but who exhibit various contraindications to heart donation. Very few organ donors were reported to have had any of the associated diseases listed in the table. Similarly, few organ donors were reported to have had an infection at the time of death. The highest percentage was for pulmonary infections--reported in 5.7% of the cases.

Chest x-ray results identified problems in a few cases: Pneumothorax (5.2%), rib fractures (4.2%) and pneumonia (3.6%). It should, however, be noted that chest x-rays were not performed on all organ donors. Chest x-ray results were reported only if the tests were performed as a routine part of the donor evaluation. Other

Table 19-3
 Characteristics of Potential Heart Donors*

<u>PRIMARY CAUSE OF DEATH</u>	<u>PERCENT</u>
Trauma	77.0
CVA	10.5
Cardiopulmonary arrest	2.9
Drug overdose	2.2
Brain tumor	2.0
Other	5.3
<u>TYPE OF DEATH</u>	
Brain death	95.7
Cardiac death	4.2
Don't know	0.1
<u>HEART FUNCTION ON ARRIVAL AT HOSPITAL</u>	
Absent	7.0
Pharmacological support	17.2
Normal	72.4
Don't know	3.3
<u>DRUGS ADMINISTERED IN PAST 24 HOURS**</u>	
Isuprel	2.2
Aramine	1.8
Intropin	59.1
Epinephrine	4.0
Other inotropic agents	6.5
Mannitol	49.1

*Potential heart donors considering only the age criterion.

**Donors may have been given more than one drug.

Table 19-4
Percent of Potential Heart Donors With Various
Contraindications to Heart Donation*

	PERCENT***
<u>ASSOCIATED DISEASE</u>	
Congenital cardiac disease	0.6
Valvular cardiac disease	0.5
Atherosclerotic cardiac disease	0.2
Peripheral arteriosclerosis	0.2
Diabetes	0.2
Hypertension	0.7
Sepsis	0.8
Malignancy	0.1
Chronic lung disease	0.4
<u>INFECTIONS</u>	
Systemic	1.2
Pulmonary	5.7
CNS	0.2
Abdominal	0.5
Genito-urinary	1.5
Subcutaneous	0.2
<u>CHEST X-RAY RESULTS**</u>	
Widened mediastinum	0.3
Pneumothorax	5.2
Rib fractures	4.2
Pneumonia	3.6
<u>OTHER CONTRAINDICATIONS</u>	
Sustained cardiac arrest	8.0
Intracardiac injections	1.8
Transient hypotension	5.8
Mediastinal trauma	2.2
Murmurs on physical exam	0.5
ECG abnormalities	3.0
Other reason specified	6.1

*Potential heart donors considering only the age criterion.

**Chest X-rays were not performed specifically for the study. Results were reported only if X-rays were performed.

***Donors may have had more than one reported contraindication.

contraindications were also reported. Among them, 8.0% of the donors sustained cardiac arrest, in 1.8% of the cases intracardiac injections were used during resuscitation, and 5.8% of the donors had a history of transient, severe hypotension after injury. In addition, 2.2% exhibited severe mediastinal trauma, .5% had murmurs on physical exam and 3.0% had ECG abnormalities. Finally in 6.1% of the cases, the data collector provided a specific reason that the heart was unacceptable for transplantation. It should, of course, be recognized that these are not mutually exclusive groups, since donors may have had more than one reported contraindication.

Table 19-5 presents the organs consented for donation by those donors who satisfy the age criterion imposed on heart donors. For almost all of these donors, consent was obtained for the donation of their kidneys (over 95%). In approximately two-thirds of the cases, consent was obtained for removal of the corneas. Much lower percentages agreed to the removal of other organs. The heart, however, did rank third, with approximately 36% providing consent.

Table 19-6 presents information regarding the procedures which were used for obtaining permission for organ donation among these potential heart donors. Less than 4% of the potential heart donors carried an organ donor card. In over 95% of the cases, permission of the next-of-kin was obtained. In addition, permission of the coroner was obtained in 60% of the cases. Finally, in approximately 28% of the cases, it was reported that the donor heart was offered to a heart transplant center.

Table 19-5
Organs Consented For Donation By Potential Heart Donors*

	<u>PERCENT</u>
Kidneys	95.4
Corneas	66.2
Heart	36.3
Liver	33.7
Pancreas	18.3
Skin	16.0
Lungs	13.7
Body	2.6

*Potential heart donors considering only age criterion

Table 19-6
Procedures For Obtaining Permission For Organ Donation
Among Potential Heart Donors*

	<u>PERCENT</u>
Donor Was Carrying A Donor Card	3.6
Permission of Next-of- Kin Was Obtained	95.7
Permission of Coroner Was Obtained	60.2
Heart Was Offered to A Heart Transplant Center	28.1

*Potential heart donors considering only the age criterion.

2. ESTIMATES OF THE AVAILABILITY OF DONOR HEARTS

As described in detail in the methods section, to provide a more accurate estimate of cardiac availability, donors that were known to have had specific contraindications to heart transplantation were excluded from consideration as potential heart donors. One contraindication was the administration of intropin or other inotropic agents in the past 24 hours. However, depending on the dosage, intropin may or may not be a contraindication to heart donation. As noted above, since information on dosage was not requested, two separate estimates of the number of potential heart donors were made--one including and one excluding intropin as a contraindication to heart donation.

Estimates of the number of potential heart donors by age and sex, excluding those donors with medical contraindications to heart donation, are presented in Table 19-7. When intropin was included as a contraindication, only 300 of the 1,291 donors were shown to be acceptable heart donors. This represents only 15% of all organ donors for which data were obtained. When intropin was excluded as a contraindication, a total of 774 of the donors (approximately 40% of all organ donors) were considered to be acceptable heart donors. The actual number is likely to fall between the two estimates. Thus, based on these results between 15 and 40 percent of all organ donors are acceptable heart donors.

Estimates derived in this analysis can then be applied to the number of cadaveric kidney donors each year to obtain an estimate of the availability of donor hearts through the existing network of organ

Table 19-7
 Number of Potential Heart Donors By Age and Sex Excluding
 Those Donors With Medical Contraindications To Heart Donation

<u>AGE OF DONOR</u>	<u>INTROPIN INCLUDED AS A CONTRAINDICATION</u>			<u>INTROPIN EXCLUDED AS A CONTRAINDICATION</u>		
	<u>MALE</u>	<u>FEMALE</u>	<u>TOTAL</u>	<u>MALE</u>	<u>FEMALE</u>	<u>TOTAL</u>
5-9	12	3	15	21	11	32
10-14	15	10	25	35	28	63
15-19	57	16	73	141	43	184
20-24	63	20	83	162	58	220
25-29	44	13	57	108	33	141
30-34	21	15	36	71	34	105
35-39	--	<u>11</u>	<u>11</u>	--	<u>29</u>	<u>29</u>
TOTAL	212	88	300	538	236	774

--Outside donor age limit.

procurement programs. As can be seen in Table 19-8, figures for 1983 range from a low estimate of 325 to a high estimate of 866. The low estimate represents 15% and the high estimate represents 40% of all kidney donors. It is, of course, unrealistic to assume that all acceptable hearts can actually be used. In fact, the number of hearts which can be harvested and successfully transplanted is reduced because of logistical problems associated with the identification of donors and recipients, the number and location of heart transplant programs, obtaining consent from next-of-kin, and problems of storage and transportation of the organs. Current technology in organ storage permits an ischemic time of only 3-4 hours. The mean ischemic time at Stanford, for example, is currently 3.3 hours (Baumgartner et al., 1979). However, it should also be recognized that the number of organ donors increased in 1983, perhaps in response to media attention concerning the shortage of organs for transplantation.

D. CONCLUSION

This chapter has presented an analysis of the availability of donor hearts through the existing network of organ procurement programs. Data for the analysis were obtained from a survey of 80 organ procurement programs over a period of 8 months. Information on a total of 1,955 individuals who donated kidneys and other organs were used to estimate the proportion of these donors that would have met minimal requirements for heart donation.

The data have shown that based on the age criterion alone, approximately two-thirds (66%) of all organ donors are potential heart

Table 19-8

Estimates of the Availability of Donor Hearts Based on the
Number of Cadaveric Kidney Transplants Performed Each Year

<u>YEAR</u>	<u>TOTAL NUMBER OF CADAVERIC KIDNEY DONORS*</u>	<u>LOW ESTIMATE OF AVAILABLE HEARTS**</u>	<u>HIGH ESTIMATE OF AVAILABLE HEARTS**</u>
1980	1711	257	684
1981	1713	257	685
1982	1846	277	738
1983	2164	325	866

*Number derived by dividing total number of cadaveric kidney transplants performed by 2 (HCFA 1981; 1982; 1983; in press; M. McMullan, personal communication, 1984). It should be noted that these numbers assume that both kidneys were used. It also does not take into consideration a 20% wastage rate. In 1982, for example, it is estimated that there were approximately 2,200 donors.

**Low estimate based on 15% and the high estimate based on 40% of all kidney donors.

donors. Moreover, of these donors, many exhibit other contraindications to heart donation. Depending upon the specific contraindications used, we estimated that only 15 to 40% of all kidney donors may be acceptable heart donors.

The results of this analysis indicate that only a small number of hearts are likely to be available each year through the existing network of organ procurement programs. Based on the number of cadaveric kidney transplants performed in the U.S. in 1982, the number of available hearts, in rounded figures, could be as high as 850 or possibly as low as 300.

These figures would suggest that organ procurement programs currently harvest a rather large proportion of the acceptable hearts from organ donors. Better communication among organ procurement programs regarding extrarenal organs could perhaps result in a modest increase in the number of hearts harvested. Large increases in the supply of acceptable donor hearts, however, would require an increase in the total number of organ donors. Thus, programs aimed at increasing public awareness, as well as the awareness of the medical community, of the need for donor organs could potentially increase the willingness of individuals to donate organs for transplantation.

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APPENDIX 19-A

DATA COLLECTION FORMS USED BY
SOUTH-EASTERN ORGAN PROCUREMENT FOUNDATION



SEOPF
RECIPIENT MASTER FORM

(To be completed by the recipient institution and mailed
to Vanderbilt University within five days of transplant)

1. DONOR NAME <table border="0" style="width: 100%;"> <tr> <td style="border-bottom: 1px solid black; width: 33%;"></td> <td style="border-bottom: 1px solid black; width: 33%;"></td> <td style="border-bottom: 1px solid black; width: 33%;"></td> </tr> <tr> <td style="text-align: center; font-size: small;">First</td> <td style="text-align: center; font-size: small;">Middle</td> <td style="text-align: center; font-size: small;">Last</td> </tr> </table> 2. DONOR REGION (1) ☐ 3. DONOR CENTER (2-3) ☐ 4. DONOR HOSPITAL UNIT (4-5) ☐ 5. DONOR NUMBER (6-10) ☐☐☐☐☐ 6. NAME OF RECIPIENT <table border="0" style="width: 100%;"> <tr> <td colspan="3" style="border-bottom: 1px solid black;"></td> </tr> <tr> <td colspan="3" style="text-align: center; font-size: small;">Maiden Name</td> </tr> <tr> <td style="border-bottom: 1px solid black; width: 33%;"></td> <td style="border-bottom: 1px solid black; width: 33%;"></td> <td style="border-bottom: 1px solid black; width: 33%;"></td> </tr> <tr> <td style="text-align: center; font-size: small;">First</td> <td style="text-align: center; font-size: small;">Middle</td> <td style="text-align: center; font-size: small;">Last</td> </tr> </table> 7. RECIPIENT CENTER (11-12) ☐ 8. RECIPIENT HOSPITAL UNIT (13-14) ☐ 9. RECIPIENT NUMBER (15-19) ☐☐☐☐☐ 10. TRANSPLANT NUMBER (20) ☐ 11. KIDNEY (21) Rt ☐ Lt ☐ 12. PRIMARY RENAL DISEASE Code according to Table III of the coding manual. (22-23) ☐☐ Other (specify) _____ (24-25) ☐☐ 13. NONRENAL DISEASE <table border="0" style="width: 100%;"> <tr> <th></th> <th style="text-align: center;">Yes</th> <th style="text-align: center;">No</th> </tr> <tr> <td>Primary Heart Disease (26)</td> <td style="text-align: center;">☐</td> <td style="text-align: center;">☐</td> </tr> <tr> <td>Primary Pulmonary Disease (27)</td> <td style="text-align: center;">☐</td> <td style="text-align: center;">☐</td> </tr> <tr> <td>Primary Brain Disease (28)</td> <td style="text-align: center;">☐</td> <td style="text-align: center;">☐</td> </tr> <tr> <td>Primary Liver Disease (29)</td> <td style="text-align: center;">☐</td> <td style="text-align: center;">☐</td> </tr> <tr> <td>Primary Endocrine Disease</td> <td></td> <td></td> </tr> <tr> <td> Diabetes (30)</td> <td style="text-align: center;">☐</td> <td style="text-align: center;">☐</td> </tr> <tr> <td> Other (31)</td> <td style="text-align: center;">☐</td> <td style="text-align: center;">☐</td> </tr> <tr> <td>Other (specify) _____ (32)</td> <td style="text-align: center;">☐</td> <td style="text-align: center;">☐</td> </tr> </table> 14. DATE FIRST DIAGNOSIS RENAL DISEASE (approximate month and year) <table border="0" style="width: 100%;"> <tr> <td style="width: 30px;"></td> <td style="width: 30px; text-align: center; font-size: small;">Mn</td> <td style="width: 30px; text-align: center; font-size: small;">Yr</td> </tr> <tr> <td>(33-36)</td> <td style="text-align: center;">☐☐</td> <td style="text-align: center;">☐☐</td> </tr> </table>				First	Middle	Last				Maiden Name						First	Middle	Last		Yes	No	Primary Heart Disease (26)	☐	☐	Primary Pulmonary Disease (27)	☐	☐	Primary Brain Disease (28)	☐	☐	Primary Liver Disease (29)	☐	☐	Primary Endocrine Disease			Diabetes (30)	☐	☐	Other (31)	☐	☐	Other (specify) _____ (32)	☐	☐		Mn	Yr	(33-36)	☐ ☐	☐ ☐	15. DATE FIRST DIALYSIS (approximate month and year) <table border="0" style="width: 100%;"> <tr> <td style="width: 30px;"></td> <td style="width: 30px; text-align: center; font-size: small;">Mn</td> <td style="width: 30px; text-align: center; font-size: small;">Yr</td> </tr> <tr> <td>(37-40)</td> <td style="text-align: center;">☐☐</td> <td style="text-align: center;">☐☐</td> </tr> </table> 16. DATE OF BIRTH (41-46) <table border="0" style="width: 100%;"> <tr> <td style="width: 30px;"></td> <td style="width: 30px; text-align: center; font-size: small;">Mn</td> <td style="width: 30px; text-align: center; font-size: small;">Day</td> <td style="width: 30px; text-align: center; font-size: small;">Yr</td> </tr> <tr> <td></td> <td style="text-align: center;">☐☐</td> <td style="text-align: center;">☐☐</td> <td style="text-align: center;">☐☐</td> </tr> </table> 17. PRE-TRANSPLANT TRANSFUSIONS Check one of the four boxes for each blood component according to the following codes. Code number of units as: 0=None given 1=1-5 units 2=6-15 units 3=Greater than 15 units 0-10 Days Before Transplant <table border="0" style="width: 100%;"> <tr> <td>Frozen RBC's</td> <td></td> <td style="text-align: center;">0</td> <td style="text-align: center;">1</td> <td style="text-align: center;">2</td> <td style="text-align: center;">3</td> </tr> <tr> <td>Glycerol Prepared (47)</td> <td>☐</td> <td>☐</td> <td>☐</td> <td>☐</td> <td>☐</td> </tr> <tr> <td>Huggins Method (48)</td> <td>☐</td> <td>☐</td> <td>☐</td> <td>☐</td> <td>☐</td> </tr> <tr> <td>Packed RBC's (49)</td> <td>☐</td> <td>☐</td> <td>☐</td> <td>☐</td> <td>☐</td> </tr> <tr> <td>Washed RBC's (50)</td> <td>☐</td> <td>☐</td> <td>☐</td> <td>☐</td> <td>☐</td> </tr> <tr> <td>Whole Blood (51)</td> <td>☐</td> <td>☐</td> <td>☐</td> <td>☐</td> <td>☐</td> </tr> <tr> <td>Plasma (52)</td> <td>☐</td> <td>☐</td> <td>☐</td> <td>☐</td> <td>☐</td> </tr> <tr> <td>Plasma Protein Fractions (53)</td> <td>☐</td> <td>☐</td> <td>☐</td> <td>☐</td> <td>☐</td> </tr> </table> 10-365 Days Before Transplant <table border="0" style="width: 100%;"> <tr> <td>Frozen RBC's</td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>Glycerol Prepared (54)</td> <td>☐</td> <td>☐</td> <td>☐</td> <td>☐</td> <td>☐</td> </tr> <tr> <td>Huggins Method (55)</td> <td>☐</td> <td>☐</td> <td>☐</td> <td>☐</td> <td>☐</td> </tr> <tr> <td>Packed RBC's (56)</td> <td>☐</td> <td>☐</td> <td>☐</td> <td>☐</td> <td>☐</td> </tr> <tr> <td>Washed RBC's (57)</td> <td>☐</td> <td>☐</td> <td>☐</td> <td>☐</td> <td>☐</td> </tr> <tr> <td>Whole Blood (58)</td> <td>☐</td> <td>☐</td> <td>☐</td> <td>☐</td> <td>☐</td> </tr> <tr> <td>Plasma (59)</td> <td>☐</td> <td>☐</td> <td>☐</td> <td>☐</td> <td>☐</td> </tr> <tr> <td>Plasma Protein Fractions (60)</td> <td>☐</td> <td>☐</td> <td>☐</td> <td>☐</td> <td>☐</td> </tr> </table> More Than One Year Before Transplant <table border="0" style="width: 100%;"> <tr> <td>Frozen RBC's</td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>Glycerol Prepared (61)</td> <td>☐</td> <td>☐</td> <td>☐</td> <td>☐</td> <td>☐</td> </tr> <tr> <td>Huggins Method (62)</td> <td>☐</td> <td>☐</td> <td>☐</td> <td>☐</td> <td>☐</td> </tr> <tr> <td>Packed RBC's (63)</td> <td>☐</td> <td>☐</td> <td>☐</td> <td>☐</td> <td>☐</td> </tr> <tr> <td>Washed RBC's (64)</td> <td>☐</td> <td>☐</td> <td>☐</td> <td>☐</td> <td>☐</td> </tr> <tr> <td>Whole Blood (65)</td> <td>☐</td> <td>☐</td> <td>☐</td> <td>☐</td> <td>☐</td> </tr> <tr> <td>Plasma (66)</td> <td>☐</td> <td>☐</td> <td>☐</td> <td>☐</td> <td>☐</td> </tr> <tr> <td>Plasma Protein Fractions (67)</td> <td>☐</td> <td>☐</td> <td>☐</td> <td>☐</td> <td>☐</td> </tr> </table>		Mn	Yr	(37-40)	☐ ☐	☐ ☐		Mn	Day	Yr		☐ ☐	☐ ☐	☐ ☐	Frozen RBC's		0	1	2	3	Glycerol Prepared (47)	☐	☐	☐	☐	☐	Huggins Method (48)	☐	☐	☐	☐	☐	Packed RBC's (49)	☐	☐	☐	☐	☐	Washed RBC's (50)	☐	☐	☐	☐	☐	Whole Blood (51)	☐	☐	☐	☐	☐	Plasma (52)	☐	☐	☐	☐	☐	Plasma Protein Fractions (53)	☐	☐	☐	☐	☐	Frozen RBC's						Glycerol Prepared (54)	☐	☐	☐	☐	☐	Huggins Method (55)	☐	☐	☐	☐	☐	Packed RBC's (56)	☐	☐	☐	☐	☐	Washed RBC's (57)	☐	☐	☐	☐	☐	Whole Blood (58)	☐	☐	☐	☐	☐	Plasma (59)	☐	☐	☐	☐	☐	Plasma Protein Fractions (60)	☐	☐	☐	☐	☐	Frozen RBC's						Glycerol Prepared (61)	☐	☐	☐	☐	☐	Huggins Method (62)	☐	☐	☐	☐	☐	Packed RBC's (63)	☐	☐	☐	☐	☐	Washed RBC's (64)	☐	☐	☐	☐	☐	Whole Blood (65)	☐	☐	☐	☐	☐	Plasma (66)	☐	☐	☐	☐	☐	Plasma Protein Fractions (67)	☐	☐	☐	☐	☐
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RECIPIENT MASTER FORM (cont.)

18. NUMBER OF PREGNANCIES (68-69) ☐ ☐

19. RACE (70) ☐
 1=White 6=Other non-white
 2=Black 9=Unknown
 3=Oriental Other (specify) _____
 4=American Indian
 5=Mixed (Cajun, Creole) _____

20. SEX (71) ☐ F ☐ M

21. PRA
 Highest (72-73) ☐ ☐
 Current (74-75) ☐ ☐

22. BLOOD GROUP (76) ☐
 1=O, 2=A, 3=B, 4=AB

23. HLA
 See Table V for acceptable codes.

Locus A (77-80) ☐ ☐ ☐ ☐
 Locus B (81-84) ☐ ☐ ☐ ☐
 Locus C (85-88) ☐ ☐ ☐ ☐

24. BILATERAL NEPHRECTOMY (89) ☐ Yes ☐ No

If yes, date of
 nephrectomy (90-93) ☐ ☐ Mn ☐ ☐ Yr

Reason for bilateral nephrectomy (94) ☐
 1=Uncontrolled Hypertension
 2=Reflux
 3=Infection
 4=Routine Prep for transplant
 5=Other (specify) _____

25. SPLENECTOMY (95) ☐ Yes ☐ No

If yes, date of
 splenectomy (96-99) ☐ ☐ Mn ☐ ☐ Yr

26. HAA STATUS
 Positive Ever (100) ☐ Yes ☐ No
 Positive Now (101) ☐ ☐

27. CHRONIC DIALYSIS DRY WEIGHT (102-104) ☐ ☐ ☐ (lbs)

28. WEIGHT 24 HOURS POST-TRANSPLANT (105-107) ☐ ☐ ☐ (lbs)

29. RECIPIENT MEDICATIONS

Dilantin (108) ☐ Yes ☐ No
 Phenobarbital (109) ☐ ☐
 Rifampin (110) ☐ ☐

30. DATE OF TRANSPLANT (111-116) ☐ ☐ Mn ☐ ☐ Day ☐ ☐ Yr

SEOPF
CADAVER DONOR FORM

One form for each kidney is to be coded as completely as possible by the procuring institution and transported with the kidney to the recipient institution

1. DONOR REGION	(1)	☐
2. DONOR CENTER	(2-3)	☐ ☐
3. DONOR HOSPITAL UNIT	(4-5)	☐ ☐
4. DONOR NUMBER	(6-10)	☐ ☐ ☐ ☐ ☐ ☐
5. RECIPIENT CENTER	(11-12)	☐ ☐
6. RECIPIENT HOSPITAL UNIT	(13-14)	☐ ☐
7. RECIPIENT NUMBER	(15-19)	☐ ☐ ☐ ☐ ☐ ☐
8. TRANSPLANT NUMBER	(20)	☐
9. KIDNEY	(21)	☐ Rt ☐ Lt
10. DONOR AGE	(22-23)	☐ ☐
11. DONOR SEX	(24)	☐ F ☐ M
12. DONOR RACE	(25)	☐
1=White 4=American Indian 2=Black 5=Mixed (Cajun, Creole) 3=Oriental 6=Other non-white Other (specify) _____		
13. BLOOD GROUP	(26)	☐
1=O, 2=A, 3=B, 4=AB		
14. HLA	See Table V for acceptable codes.	
Locus A	(27-30)	☐ ☐ ☐ ☐
Locus B	(31-34)	☐ ☐ ☐ ☐
Locus C	(35-38)	☐ ☐ ☐ ☐
15. DATE OF INJURY OR HOSPITALIZATION		
	(39-46)	☐ ☐ Mn ☐ ☐ Day ☐ ☐ Yr ☐ ☐ Hr
16. CAUSE OF DEATH	(47)	☐
1=Trauma 2=C.V.A. 3=Brain Tumor 4=Drug Overdose 5=Cardio-pulmonary arrest Other (specify) _____		

17. ASSOCIATED DISEASE		
Hypertension	(48)	☐ Yes ☐ No
Diabetes	(49)	☐ Yes ☐ No
Extra-cranial malignancy	(50)	☐ Yes ☐ No
Sepsis	(51)	☐ Yes ☐ No
Arteriosclerosis	(52)	☐ Yes ☐ No
Other (specify)	_____	
18. URINE PRODUCTION		
Urine output during last hour before harvest (cc/hr)	(53-56)	☐ ☐ ☐ ☐
Maximum output during last 24 hrs before harvest (cc/hr)	(57-60)	☐ ☐ ☐ ☐
Minimum output during last 24 hrs before harvest (cc/hr)	(61-64)	☐ ☐ ☐ ☐
Was urine being produced at the time the kidney was removed?	(65)	☐ Yes ☐ No
19. SYSTOLIC BLOOD PRESSURE		
Lowest systolic blood pressure during last 24 hours before harvest	(66-68)	☐ ☐ ☐
Average systolic blood pressure during last 24 hrs before harvest	(69-71)	☐ ☐ ☐
20. URINE ANALYSIS		
Protein	(72)	☐
0=None, 1=+, 2=++, 3=+++, 4=++++, 5=trace		
Specific Gravity	(73-76)	☐ ☐ ☐ ☐
For red cells, white cells and casts code actual number, if number greater than 98, code 98.		
Red Cells	(77-78)	☐ ☐
White Cells	(79-80)	☐ ☐
Casts	(81)	☐ Yes ☐ No
Specify type	_____	
Urine Culture	(82)	☐ Yes ☐ No
Culture Results	(83)	☐ Pos ☐ Neg

CADAVER DONOR FORM (cont.)

21. NUMBER OF DAYS WITH INDWELLING FOLEY CATHETER 0-1 2-3 >3
(84) ☐ ☐ ☐

22. INFECTIONS AT TIME OF HARVEST

		Pos Cult	Neg Cult	No Cult
Pulmonary				
Viral	(85)	☐	☐	☐
Bacterial	(86)	☐	☐	☐
Fungal	(87)	☐	☐	☐
Genito Urinary				
Viral	(88)	☐	☐	☐
Bacterial	(89)	☐	☐	☐
Fungal	(90)	☐	☐	☐
Subcutaneous				
Viral	(91)	☐	☐	☐
Bacterial	(92)	☐	☐	☐
Fungal	(93)	☐	☐	☐
Abdominal				
Viral	(94)	☐	☐	☐
Bacterial	(95)	☐	☐	☐
Fungal	(96)	☐	☐	☐
C.N.S.				
Viral	(97)	☐	☐	☐
Bacterial	(98)	☐	☐	☐
Fungal	(99)	☐	☐	☐
Systemic				
Viral	(100)	☐	☐	☐
Bacterial	(101)	☐	☐	☐
Fungal	(102)	☐	☐	☐

23. ANTIBIOTICS GIVEN Yes No
(103) ☐ ☐

24. MOST RECENT RENAL FUNCTION CHEMISTRIES

Maximum B.U.N. since hospitalization (104-106) ☐ ☐ ☐

Maximum Serum Creatinine since hospitalization (107-109) ☐ ☐ ☐

Most recent B.U.N. (110-112) ☐ ☐ ☐

Most Recent Serum Creatinine (113-115) ☐ ☐ ☐

25. DRUGS DURING LAST 24 HOURS HOSPITALIZATION

		Yes	No
Isuprel (Isoproterenol)	(116)	☐	☐
Aramine (Metaraminol)	(117)	☐	☐
Intropin (Dopamine)	(118)	☐	☐
Mannitol	(119)	☐	☐

For drugs below, code the total amount given in the units specified. If not given, code with zeros.

Heparin (units) (120-124) ☐ ☐ ☐ ☐ ☐

Lasix (mg) (Furosemide) (125-128) ☐ ☐ ☐ ☐

Solumedrol (mg) (Methylprednisolone) (129-132) ☐ ☐ ☐ ☐

Cytoxan (mg) (Cyclophosphamide) (133-136) ☐ ☐ ☐ ☐

Decadron (mg) (Dexamethasone) (137-139) ☐ ☐ ☐

Dibenzyline (mg) (Phenoxybenzamine) (140-142) ☐ ☐ ☐

Regitine (mg) (Phentolamine) (143-145) ☐ ☐ ☐

Thorazine (mg) (Chlorpromazine) (146-148) ☐ ☐ ☐

Other (specify) (149-151) ☐ ☐ ☐

26. HARVEST ON RESPIRATOR (152) Yes No ☐ ☐

27. KIDNEY HARVEST EN BLOC (153) Yes No ☐ ☐

28. KIDNEY UTILIZATION (154-155) ☐ ☐

0=Local 11=Canada
1=SEOPF 12=Europe
2=Midwest Organ Bank 99=None of the above
3=New York - New Jersey
4=Northeast
5=Southwest Organ Bank
6=Great Lakes Area
7=Midwest
8=North Central Region
9=West Coast
10=Discarded

29. REASON FOR DISCARDING KIDNEY (156) ☐

1=Anatomical
2=Physiological
3=Contamination
4=Too long on preservation
5=No suitable recipient available
Other (specify) _____

SEOPF
CADAVER KIDNEY PRESERVATION FORM

1 of 3

One form for each kidney is to be coded as completely as possible by the procuring institution and transported with the kidney to the recipient institution

1. DONOR REGION (1) ☐ 2. DONOR CENTER (2-3) ☐ 3. DONOR HOSPITAL UNIT (4-5) ☐ 4. DONOR NUMBER (6-10) ☐ 5. RECIPIENT CENTER (11-12) ☐ 6. RECIPIENT HOSPITAL UNIT (13-14) ☐ 7. RECIPIENT NUMBER (15-19) ☐ 8. TRANSPLANT NUMBER (20) ☐ 9. KIDNEY (21) ☐ Rt ☐ Lt 10. DATE AND TIME (22-27) ☐ Mn ☐ Dy ☐ Yr KIDNEY REMOVED (Use 24 hour clock) (28-31) ☐ Hr ☐ Mn 11. WARM ISCHEMIA TIME (minutes) (32-34) ☐ 12. NUMBER RENAL ARTERY(S) (35) ☐ 1 ☐ 2 ☐ 3 If more than 1 artery, approx. % of kidney supplied by the principal artery (36-37) ☐ 13. NUMBER RENAL VEINS (38) ☐ One ☐ >1 14. URETER Length (39) ☐ Adeq ☐ Inadeq Number (40) ☐ One ☐ >1 Blood Supply (41) ☐ Adeq ☐ Inadeq 15. CHARACTERISTICS OF KIDNEY Capsule Intact (42) ☐ Yes ☐ No Subcapsular Hematoma (43) ☐ Yes ☐ No Lacerated Capsule (44) ☐ Yes ☐ No Cortical Hemorrhage (45) ☐ Yes ☐ No	16. FLUSH SOLUTION(S) Ringers (46) ☐ Yes ☐ No Collins (47) ☐ Yes ☐ No Sacks (48) ☐ Yes ☐ No Venezuelan (49) ☐ Yes ☐ No Citrate (50) ☐ Yes ☐ No Albumin (51) ☐ Yes ☐ No Solumedrol (52) ☐ Yes ☐ No Heparin (53) ☐ Yes ☐ No Dextran (54) ☐ Yes ☐ No Other _____ 0-200 200-400 >400 17. VOLUME OF FLUSH (cc) (55) ☐ 0-200 ☐ 200-400 ☐ >400 18. DURATION OF FLUSH (minutes) (56) ☐ ≤10 ☐ >10 19. IMMERSION BATH CULTURED (57) ☐ 1=Bacterial, 2=Fungus, 3=Both, 4=Not Cultured 20. PRESERVATION I Mn Day Yr Hr Mn (58-67) Start ☐ ☐ ☐ ☐ ☐ ☐ (68-77) End ☐ ☐ ☐ ☐ ☐ ☐ PRESERVATION METHOD (78) ☐ 1=Storage Ice, 2=Pulsatile Perfusion Other (specify) _____ 21. PRESERVATION II Mn Day Yr Hr Mn (79-88) Start ☐ ☐ ☐ ☐ ☐ ☐ (89-98) End ☐ ☐ ☐ ☐ ☐ ☐ PRESERVATION METHOD (99) ☐ 1=Storage Ice, 2=Pulsatile Perfusion Other (specify) _____ 22. PRESERVATION III Mn Day Yr Hr Mn (100-109) Start ☐ ☐ ☐ ☐ ☐ ☐ (110-119) End ☐ ☐ ☐ ☐ ☐ ☐ PRESERVATION METHOD (120) ☐ 1=Storage Ice, 2=Pulsatile Perfusion Other (specify) _____
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23. PRESERVATION IV Mn Day Yr Hr Mn
 (121-130) Start
 (131-140) End
 PRESERVATION METHOD (141) ☐
 1=Storage Ice, 2=Pulsatile Perfusion
 Other (specify) _____

24. FIRST PULSATILE PERFUSION
 Perfusate: (142) ☐
 1=Albumin
 2=Plasma, cryo-precipitated
 3=Plasma, protein fractions
 4=Plasma, silica gel fraction
 5=Other (specify) _____

Equipment: (143) ☐
 1=Belzer, 2=Gambro, 3=Travenol, 4=Waters
 5=Other (specify) _____

Perfusion Pressure
 Maximum - Systolic (144-146)
 Diastolic (147-149)
 Final - Systolic (150-152)
 Diastolic (153-155)

Flow Rate: cc/min
 Maximum (156-158)
 Final (159-161)

Abnormalities: (162) ☐ ☐ ☐ ☐ ☐ ☐
 Culture: (163) ☐ ☐ ☐ ☐ ☐ ☐
 1=Bacterial, 2=Fungus,
 3=Both, 4=Not Cultured

Perfusion Problems (164) ☐ ☐ ☐ ☐ ☐ ☐
 Specify Type of Problem _____

25. SECOND PULSATILE PERFUSION

Perfusate: (165) ☐
 1=Albumin
 2=Plasma, cryo-precipitated
 3=Plasma, protein fractions
 4=Plasma, silica gel fraction
 5=Other (specify) _____

Equipment: (166) ☐
 1=Belzer, 2=Gambro, 3=Travenol, 4=Waters
 5=Other (specify) _____

Perfusion Pressure:

Maximum - Systolic (167-169)
 Diastolic (170-172)
 Final - Systolic (173-175)
 Diastolic (176-178)

Flow Rate: cc/min

Maximum (179-181)
 Final (182-184)

Abnormalities: (185) ☐ ☐ ☐ ☐ ☐ ☐
 Culture: (186) ☐ ☐ ☐ ☐ ☐ ☐
 1=Bacterial, 2=Fungus,
 3=Both, 4=Not cultured

Perfusion Problems (187) ☐ ☐ ☐ ☐ ☐ ☐
 Specify type of problem _____

26. TRANSPORTATION OF KIDNEY

First Transportation Center Unit
 Destination (188-191)
 Distance in miles (192-195)

Mode of Transport Yes No
 Air charter (196) ☐ ☐
 Corporate charter (197) ☐ ☐
 Air commercial (198) ☐ ☐

Specially equipped vehicle
 for renal preservation (199) ☐ ☐
 Police Car (200) ☐ ☐

Disposition of Kidney
 Transplanted (201) ☐ ☐

If not transplanted, give reason
 Positive crossmatch (202) ☐ ☐
 Further perfusion (203) ☐ ☐
 Unavailable recipient (204) ☐ ☐
 Four antigen match
 elsewhere (205) ☐ ☐
 Other (specify) _____ (206) ☐ ☐

Second Transportation Center Unit
 Destination (207-210)
 Distance in Miles (211-214)

Mode of Transport Yes No
 Air charter (215) ☐☐
 Corporate charter (216) ☐☐
 Air commercial (217) ☐☐
 Specially equipped vehicle
 for renal preservation (218) ☐☐
 Police car (219) ☐☐

Disposition of Kidney
 Transplanted (220) ☐☐
 If not transplanted, give reason
 Positive crossmatch (221) ☐☐
 Further perfusion (222) ☐☐
 Unavailable recipient (223) ☐☐
 Four antigen match
 elsewhere (224) ☐☐
 Other (specify) _____ (225) ☐☐

Third Transportation Center Unit
 Destination (226-229)
 Distance in Miles (230-233)

Mode of Transport Yes No
 Air charter (234) ☐☐
 Corporate charter (235) ☐☐
 Air commercial (236) ☐☐
 Specially equipped vehicle
 for renal preservation (237) ☐☐
 Police car (238) ☐☐

Disposition of Kidney
 Transplanted (239) ☐☐
 If not transplanted, give reason
 Positive crossmatch (240) ☐☐
 Further perfusion (241) ☐☐
 Unavailable recipient (242) ☐☐
 Four antigen match
 elsewhere (243) ☐☐
 Other (specify) _____ (244) ☐☐

27. VASCULAR ANASTOMOSIS TIME (245-247)
 (minutes)

28. CIRCULATION RESTORED (24 hour clock)

(248-257) Mn Day Yr Hr Mn

Technical Problems (specify) _____

29. RENAL BIOPSY

Yes No
 Before revascularization (258) ☐☐
 After revascularization (259) ☐☐
 Time (minutes) after
 revascularization (260-262)

30. URINE FLOW AT END OF OPERATION (263) ☐☐

31. OPERATIVE COMPLICATIONS

Yes No
 Arterial (264) ☐☐
 Venous (265) ☐☐
 Ureteral (266) ☐☐
 Recipient Blood Pressure
 < 110 mm Hg Systolic (267) ☐☐
 Other (specify) _____ (268) ☐☐

32. KIDNEY FUNCTION 24 HOURS POST-TRANSPLANT

Total urine output
 cc/24 hrs (269-273)

Serum creatinine (274-276)

33. RESULTS OF CULTURES IMMERSION BATH

Not
 First Pulsatile Pos Neg Done
 Perfusion (277) ☐☐☐
 Second Pulsatile
 Perfusion (278) ☐☐☐



APPENDIX 19-B

LETTER REQUEST FOR PARTICIPATION IN THE ORGAN PROCUREMENT
PROGRAM SURVEY





Human Affairs Research Centers

4000 N. E. 41st Street

P. O. Box C-5395

Seattle, Washington 98105

Telephone: (206) 525-3130

CABLE HARCSEA

June 22, 1982

Dear :

The Battelle Human Affairs Research Centers, located in Seattle, Washington, was recently awarded a contract by the Health Care Financing Administration to serve as the Coordinating Center for a major study on heart transplantation. The objective of this study, now referred to as the National Heart Transplantation Study, is to examine all aspects of heart transplants including the scientific, social, economic, and ethical issues, and, in particular, the impact of a possible Medicare decision to pay for heart transplants on the Medicare program, Medicare beneficiaries, and providers of health care.

The study is divided into seven major analytic components, one of which is organ procurement. The other components will consist of:

- . an epidemiological analysis
- . a survival analysis
- . a cost analysis
- . a sociomedical analysis
- . an ethical analysis
- . a legal analysis

The intent of each analytic component is self-evident. The epidemiological analyses will be devoted to estimating the need for heart transplants. It is currently estimated that as many as 75,000 potential recipients might be identified each year.

The survival analyses will examine how long heart transplant recipients live and what factors appear responsible for differential survival rates (e.g., use of endomyocardial biopsy to detect rejection, use of cyclosporin A for immunosuppression, donor-recipient tissue compatibility).

The cost analyses will be devoted to estimating the cost of a heart transplant. For example, attention will be directed to preoperative, operative, postoperative costs, and organ procurement costs, in an effort to derive an accurate estimate of the total cost of a heart transplant. As you

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are undoubtedly aware, a more careful attempt is being made to properly allocate donor procurement costs across all organ recipients. In addition to properly assessing the cost of procuring hearts, an effort will be made to estimate the total program costs associated with heart transplantation.

The sociomedical analyses will examine issues such as the heart transplant recipient's quality of life, level of disability, and level of rehabilitation. Complications which arise from the long-term administration of corticosteroids will also be given attention.

The ethical analyses will delve into several areas including the following: (1) definition of death, (2) confidentiality, (3) experiment versus therapy dilemma, (4) organ procurement, (5) recipient selection, and (6) patient's right to health care. Other issues, as deemed appropriate, will also be considered.

The legal analysis will examine various issues which are not unrelated to the ethical issues. These include: (1) definition of death, (2) funding mechanisms, (3) organ procurement, (4) recipient selection, and (5) legal liability. Again, the issues in this area will be expanded as seen fit.

Although all of the foregoing analyses are extremely critical to the successful completion of the study, it is with regard to the organ procurement issues that we are writing you today. As you know, estimating the need for heart transplants is only one side of the coin; the other side is estimating the potential supply of donor organs. To do so, we are writing all organ procurement programs throughout the United States requesting their input into the study. We would greatly appreciate any assistance you are willing to provide.

Based on very crude data, it is currently estimated that, under ideal circumstances, and using existing donor selection criteria, about 1000 to 2000 donor hearts might be available each year. Some estimates, for example, have been based on data made available through the End-Stage Renal Disease Program concerning kidney transplants. The assumption is made that nearly all kidney donors (except living donors, of course) are potential heart donors. Often, however, no attempt is made to apply the donor heart selection criteria to the kidney donors. In 1979, 4,271 kidney transplants were performed. Of these, 3,066 involved cadaveric donors. Thus, assuming that all kidney transplant donors were suitable heart donors, and assuming both cadaveric kidneys were transplanted into separate individuals, 1,533 hearts would have been available for transplant. Due to problems of transport, social acceptability (people may donate kidneys but not hearts), and failure to fit the heart donor criteria, the actual figure is likely to be somewhat smaller.

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Our goal is to improve the data upon which such estimates are based, while enhancing our ability to generalize. To do this we plan on prospectively collecting data on all donors at all organ procurement programs across the United States. We have specified the appropriate donor selection criteria on a single form, and for every donor referred through your program for a 12 month period, beginning in January, 1983 and ending in December, 1983, we are asking that a record be kept as to which criteria the donor met or failed to meet. Variables relevant to the selection of donor hearts are provided in Table 1 (attached). A one page form has been developed based on these. A sample of what this form might look like is attached. Each time a donor is referred to your agency, a line on this form would be completed. Completing this form would not require an extraordinary level of effort on your behalf, yet it would yield extremely valuable data for the study. We would provide you with a supply of these forms and ask that at the end of each month you return the completed forms to us. The forms are easy to complete and would not constitute an undue intrusion on your staff. We have intentionally designed the form to ease respondent burden. At the end of the 12 month period, we would then analyze the results and make them available to all who have participated in the study.

The selection of heart donors has been fully described in several publications from major heart transplant programs. The criteria for donor selection, as published by Dr. Jack Copeland and Dr. Edward B. Stinson (see Current Problems in Cardiology 4:2-51, 1979), are reproduced below.

The initial requirement for a cardiac donor is that he/she meet some accepted criteria for brain death. Not all patients who meet the brain death criteria, however, are suitable donors. In a previous study of cardiac donors, two factors found to correlate with poor graft function were increasing donor age and a history of transient, severe hypotension after injury. Male cardiac donors should probably be under age 35 and female donors, under 40 years. In older potential donors, even with negative cardiac histories and findings, coronary arteriography is often recommended to rule out coronary artery disease. Most often, donors have traumatic head injuries (blunt trauma, gunshot wound). Initial evaluation should include a survey for evidence of thoracic or cardiac trauma, including intracardiac injections during resuscitative procedures. A careful history of events from the time of injury until the time of donor referral is essential to define periods of cardiorespiratory arrest and hypotension that may have damaged the heart. A careful cardiac history from relatives and direct examination are followed by ECG, chest roentgenogram and CPK-MB serum enzyme determination. Finally, if the potential donor appears to have a normal functioning heart, has no infection or carcinoma, is ABO compatible with the recipient, has a negative lymphocyte crossmatch with recipient serum and is a reasonable size match for the recipient, he/she is accepted.

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June 22, 1982

The person most likely to be designated with responsibility for the prospective data collection effort would be the Transplant Coordinator. This person is undoubtedly intimately familiar with the data collection activities of your program. As you can see, the data we are asking you to record for us is probably already being collected on a routine basis. Thus, we are simply asking if it would be possible for the Transplant Coordinator to abstract the relevant data and record it on our form.

In addition to your thoughts on a prospective data collection system as described here, we would appreciate it if you would provide us with answers to the attached questionnaire. We are particularly interested in knowing what types of data you have available, the number of donors referred to your program, and the number of organs harvested each year. Also, we want to know your willingness to participate in a prospective data collection system having the objectives stated above. Please complete the attached questionnaire and return it to us in the enclosed envelope.

Since we have attempted to mail this letter and set of attachments to every organ procurement program, it may be that you will receive two letters provided you are associated with more than one program at two separate institutions. Also, if you are a member of a larger organ procurement program, such as the South-eastern Organ Procurement Foundation (SEOPF), this program is also likely to have received an inquiry from us.

We would greatly appreciate your time and effort in assisting us. We look forward to being able to work with you in the future. If you should have any further questions, please do not hesitate to contact us. Thanks again.

With our kindest regards,

Roger W. Evans, Ph.D.
Research Scientist
Project Director
National Heart Transplantation Study

Diane L. Manninen, Ph.D.
Research Scientist
Task Leader, Organ Procurement Component
National Heart Transplantation Study

RWE:mg
Encl.

APPENDIX 19-C

QUESTIONNAIRE TO REQUEST PARTICIPATION IN THE ORGAN
PROCUREMENT PROGRAM SURVEY



NATIONAL HEART TRANSPLANTATION STUDY

ORGAN PROCUREMENT PROGRAM SURVEY

Please complete this form by August 16, 1982 and return it to
Dr. Roger W. Evans, Research Scientist, Project Director,
National Heart Transplantation Study, Battelle Human Affairs
Research Centers, 4000 N.E. 41st Street, Seattle, Washington 98105

3. Would you be willing to provide data you currently have on file for your organ donors?

(CIRCLE ONE)

YES 01

NO 02 (SKIP TO Q. 6)

4. What types of data are available on organ donors referred to your program? (PLEASE DESCRIBE IN DETAIL AND PROVIDE ANY SAMPLES OF DATA COLLECTION FORMS YOU HAVE ON HAND.)

5. For how many years are you able to provide back data on organ donors referred to your program?

 YEARS
(Number of Years)

 PLACE A CHECK IN THIS BOX IF YOU ARE
 UNABLE TO PROVIDE ANY BACK DATA.

6. How many organ donors were referred to you in 1981?

(Number of Donors)

7. How many of each of the following organs were harvested by your program in 1981?

_____	KIDNEYS
_____	HEARTS
_____	LIVERS
_____	PANCREAS
_____	LUNGS

8. Is this organ procurement agency a member of a larger regional organ procurement program such as the South-eastern Organ Procurement Foundation or the Regional Organ Procurement Agency of Southern California?

YES 01

NO 02

9. Please specify the name of the regional organ procurement program:

10. Please provide a complete address for your program, as well as the name of the person to whom all future correspondence should be sent.

Thank you very much for your time and consideration. If you should have any further questions, please do not hesitate to call or write Dr. Roger W. Evans or Dr. Diane L. Manninen. We can be reached at (206) 525-3130 or Health and Population Study Center, Battelle Human Affairs Research Centers, 4000 N.E. 41st Street, Seattle, WA 98105.

APPENDIX 19-D

LIST OF PARTICIPATING ORGAN PROCUREMENT PROGRAMS



University of Alabama Medical Center, Birmingham, AL
Phoenix Renal Transplant Center, Phoenix, AZ
Renal Transplant Program, Tucson, AZ
University of Arkansas for Medical Sciences, Little Rock, AR
Regional Organ Procurement Agency of Southern California (ROPA), Los Angeles, CA

University of California, Davis Medical Center, Sacramento, CA

- * University of California, San Francisco, CA
 - Pacific Medical Center, San Francisco, CA
 - Northern California Transplant Bank, San Francisco, CA
 - Hartford Hospital, Hartford, CT
 - George Washington University Medical Center, Washington, DC
 - Howard University Hospital, Washington, DC
 - Walter Reed Army Medical Center, Washington, DC
 - University of Florida College of Medicine, Gainesville, FL
 - University of Miami School of Medicine, Miami, FL
 - East Central Florida Transplant Program, Orlando, FL
 - Northwest Florida Artificial Kidney Center, Pensacola, FL
 - Florida West Coast Organ Procurement, Inc., Tampa, FL
 - Atlanta Regional Organ Procurement Agency, Atlanta, GA
 - Medical College of Georgia, Augusta, GA
 - St. Francis Hospital, Honolulu, HI
 - Northwestern Memorial Hospital, Chicago, IL
- * Rush-Presbyterian-St. Luke's Medical Center, Chicago, IL
 - University of Chicago Hospitals and Clinics, Chicago, IL
 - University of Illinois Medical Center, Chicago, IL
 - Southern Illinois University School of Medicine, Springfield, IL
 - Renal Transplant Center, Indianapolis, IN
 - Methodist Hospital of Indiana, Inc., Indianapolis, IN
 - University of Iowa Hospitals and Clinics, Iowa City, IL
 - University of Kentucky Medical Center, Lexington, KY
 - End Stage Renal Disease Program at Jewish Hospital, Louisville, KY
 - Louisiana State University Medical Center, New Orleans, LA
 - Tulane University Medical School, New Orleans, LA
 - Louisiana State University Medical Center, Shreveport, LA
 - Maryland Organ Procurement Center, Baltimore, MD
 - New England Organ Bank, Boston, MA

Organ Procurement Agency of Michigan, Ann Arbor, MI
 University of Minnesota, Minneapolis, MN
 Mayo Clinic-Mayo Foundation, Rochester, MN
 University of Mississippi Medical Center, Jackson, MS
 University of Missouri, Columbia, MO
 Midwest Organ Bank, Kansas City, MO
 St. Louis Regional Transplant Association, St. Louis, MO
 Washington University, St. Louis, MO
 Nebraska Organ Retrieval System, Inc., Omaha, NE
 Southern N.J. Regional Transplant Program, Camden, NJ
 * Northern New Jersey Organ Procurement Program, Newark, NJ
 The University of New Mexico Hospital, Albuquerque, NM
 Gift of Life Program, S.U.N.Y., Brooklyn, NY
 Organ Procurement Agency of Western New York, Buffalo, NY
 North Shore University Hospital, Manhasset, NY
 New York Regional Transplant Program, Inc., New York, NY
 University of Rochester School of Medicine, Rochester, NY
 Duke University Medical Center, Durham, NC
 Charlotte Memorial Hospital and Medical Center, Charlotte, NC
 East Carolina University School of Medicine, Greenville, NC
 University of Cincinnati Medical Center, Cincinnati, OH
 Organ Recovery Inc., Cleveland, OH
 * Ohio State University, Columbus, OH
 Organ Procurement Agency of Northwestern Ohio, Maumee, OH
 Miami Valley Hospital, Dayton, OH
 Hillcrest Renal Disease Center, Tulsa, OK
 Oregon Health Sciences University, Portland, OR
 Delaware Valley Transplant Program, Philadelphia, PA
 University of Pittsburgh, Pittsburgh, PA
 Medical University of South Carolina, Charleston, SC
 Mid-South Transplant Foundation, Inc., Memphis, TN
 Nashville Regional Organ Procurement Agency, Nashville, TN
 Southwest Organ Bank, Inc., Dallas, TX
 University of Texas Health Science Center, Houston, TX
 * Methodist Hospital, Houston, TX
 South Texas Organ Bank, Inc., San Antonio, TX
 Austin Diagnostic Clinic, Austin, TX

Intermountain Transplant Center, Salt Lake City, UT

* Virginia Organ Procurement Agency, Virginia Beach, VA

* Medical College of Virginia, Richmond, VA

Virginia Organ Procurement Agency, Roanoke, VA

Northwest Kidney Center, Seattle, WA

West Virginia Transplant Program, Charleston, WV

University of Wisconsin Hospitals, Madison, WI

*Programs that did not provide data for the entire 8-month period.



APPENDIX 19-E

INSTRUCTIONS FOR COMPLETING THE ORGAN PROCUREMENT PROGRAM
DATA COLLECTION FORM



INSTRUCTIONS FOR COMPLETING THE
ORGAN PROCUREMENT PROGRAM DATA COLLECTION FORM

1. Begin recording information on organ donors as of August 1, 1983.
2. Complete one line of the data collection form for each organ donor from whom you actually harvest an organ (we are not interested in obtaining information on telephone referrals, etc.).
3. Please note that we expect you to record information on donors which is readily available. You do not need to order x-rays or special tests. If certain tests were not performed, or information is not known, record "NP" or "DK" in the appropriate columns on the data collection form.
4. Also please note that in recording primary cause of death, type of death, and heart function on arrival at hospital, we would like you to check the one most appropriate response. However, in recording other information, such as associated disease, infections, organs consented for donation, etc., we would like you to check all responses that apply. Specific instructions for each question are printed on the data collection form.
5. It will probably be easiest if you record information as soon as possible after each donor referral, if possible, completing the form as part of your routine recordkeeping activities.
6. If organs are imported from a hospital outside your program, you need not record any donor information. Information about the donor should be recorded only by the export hospital or organ procurement program.
7. Begin a new data collection form for each month. If you fill an entire page, continue on a second page. Be sure to record the name of your organ procurement program at the top of each page when you begin a new data collection form. Return completed forms to us on a monthly basis.
8. If at any time you have any questions in completing the forms, please do not hesitate to call (206-525-3130).



APPENDIX 19-F

ORGAN PROCUREMENT PROGRAM DATA COLLECTION FORM



PLANTATION STUDY

DATA COLLECTION FORM

RAY RESULTS (That Apply)										OTHER CONTRAINDICATIONS (Check All That Apply)									
RIB FRACTURES (48)										SUSTAINED CARDIAC ARREST (50)									
PNEUMONIA (49)										INTRACARDIAC INJECTIONS USED DURING RESUSCITATION (51)									
										HISTORY OF TRANSIENT, SEVERE HYPOTENSION AFTER INJURY (52)									
										SEVERE MEDIASTINAL TRAUMA (53)									
										MURMURS ON PHYSICAL EXAM (54)									
										ECG ABNORMALITIES (55)									
										KIDNEYS (56)									

[illegible]

(1) IF A GIVEN TEST WAS NOT PERFORMED, FOR EXAMPLE, A CHEST X-RAY WAS NOT DONE, PLACE AN "NP" IN EACH COLUMN WHERE THE TEST RESULTS WERE TO BE RECORDED.

(2) PLACE A "DK" IN EACH COLUMN IF THE INFORMATION REQUESTED IS NOT KNOWN.



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